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Illustrated Catalogue

Ames Plow Company

Boston and New York.

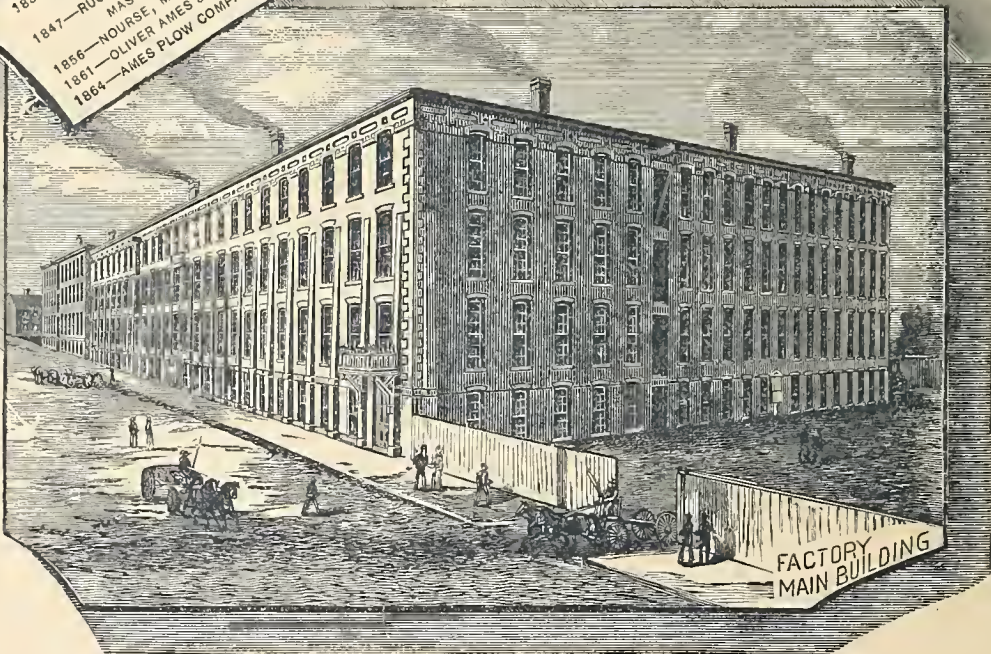








1837—RUGGLES, NOURSE  
& MASON.  
1847—RUGGLES, NOURSE,  
MASON & CO.  
1856—NOURSE, MASON & CO.  
1861—OLIVER AMES & SONS.  
1864—AMES PLOW COMPANY.



ILLUSTRATED CATALOGUE  
OF  
**AGRICULTURAL IMPLEMENTS**  
AND  
**MACHINES,**

Carts, Wagons and Harness, Trucks and  
Wheelbarrows, Contractors' Supplies  
and Ice Tools.

MANUFACTURED BY

✓  
**AMES PLOW COMPANY**

15  
9427<sup>a</sup> (Successors of Nourse, Mason & Co.)

WAREHOUSES:

**QUINCY HALL, BOSTON,**

AND

**53 BEEKMAN STREET, NEW YORK.**

Factory: WORCESTER, MASS.

**1893.**

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BOSTON:  
THE RAPID PRINTING CO.  
106 PEARL STREET  
1893.



## Announcement.



*To our friends and patrons we again extend thanks for their past liberality to us and to our predecessors through the many years' duration of a business established in the early part of the century. We assure all that it will continue to be our aim to furnish the most approved agricultural implements and machines, and that no expense will be spared to make our manufactures the best in the market and all that can be desired, thus maintaining the high standard of excellence they have enjoyed in the past.*

*We have, since issuing our last catalogue, added materially to our already extensive line, and we now present in these pages illustrations and descriptions of both new and old to which we invite the trade and consumers in general, not only at home but in every country of the world.*

*Plows form an important item among our manufactures and have a wide celebrity for excellence of work, substantiated by a patronage of which we may well be proud, when the great competition is considered with which we are obliged to contend. We have added among others the series of improved plows which we have named the "New England Chilled." These with the Eagle Deep Tilling Plows and others of the celebrated Eagle brand, of which we are the originators,—the Centennial and the Hakes Swivel Plows, the Boston Steel Clipper Plows, and the Prouty and Mears Plows, patterns for which we acquired by purchase from the originators, as well as a large number of other kinds,—constitute an assortment not excelled by any other manufacturer.*

*We have also added to our assortment of the other implements and machines requisite for the proper cultivation of the soil, the planting of seed, the harvesting of the crop, and the preparation of it for market.*

*The assortment of Carts, Wagons, Trucks, Barrows, etc., we have very materially increased during the past few years.*

*Harness, Ice Tools and Contractors' Tools are entirely new acquisitions. Of Ice Tools we now manufacture a full assortment used in cutting, storing, and marketing this important commodity.*

*We illustrate and describe as many of our manufactures as possible, but there are a large number of other articles, adapted to special requirements, which are not mentioned within.*

*We will always be pleased to supply any machinery, implements, hardware or other articles required on farm or plantation, and if they are not among our own manufactures, we will procure them for our customers at the usual manufacturers' rates.*

---

*Our business was established sometime prior to 1835, at Shrewsbury, Mass., by the late Mr. Joel Nourse, who, in 1837, removed to Worcester, Mass., and the firm of Ruggles, Nourse & Mason being formed, they extended the business by opening a spacious warehouse at Boston, in Quincy Hall, over the market, where the present company still have their headquarters.*

*In 1847, new members being admitted, the firm-name was changed to Ruggles, Nourse, Mason & Co.*

*By a change of partners in 1856, the firm of Nourse, Mason & Co. was formed, who, in 1861, were succeeded by Oliver Ames & Sons, the well-known shovel manufacturers.*

*The present company was incorporated in 1864, and in 1866 opened a branch warehouse in New York City. In 1874, a new and commodious factory was erected at Worcester, Mass. The warehouse in New York City is at No. 53 Beekman Street.*

---

*With the present extensive manufacturing facilities and spacious warehouses, which have been recently enlarged, we trust that we may fully meet a rapidly increasing patronage in a manner meriting the satisfaction, approval, and confidence of our customers everywhere.*



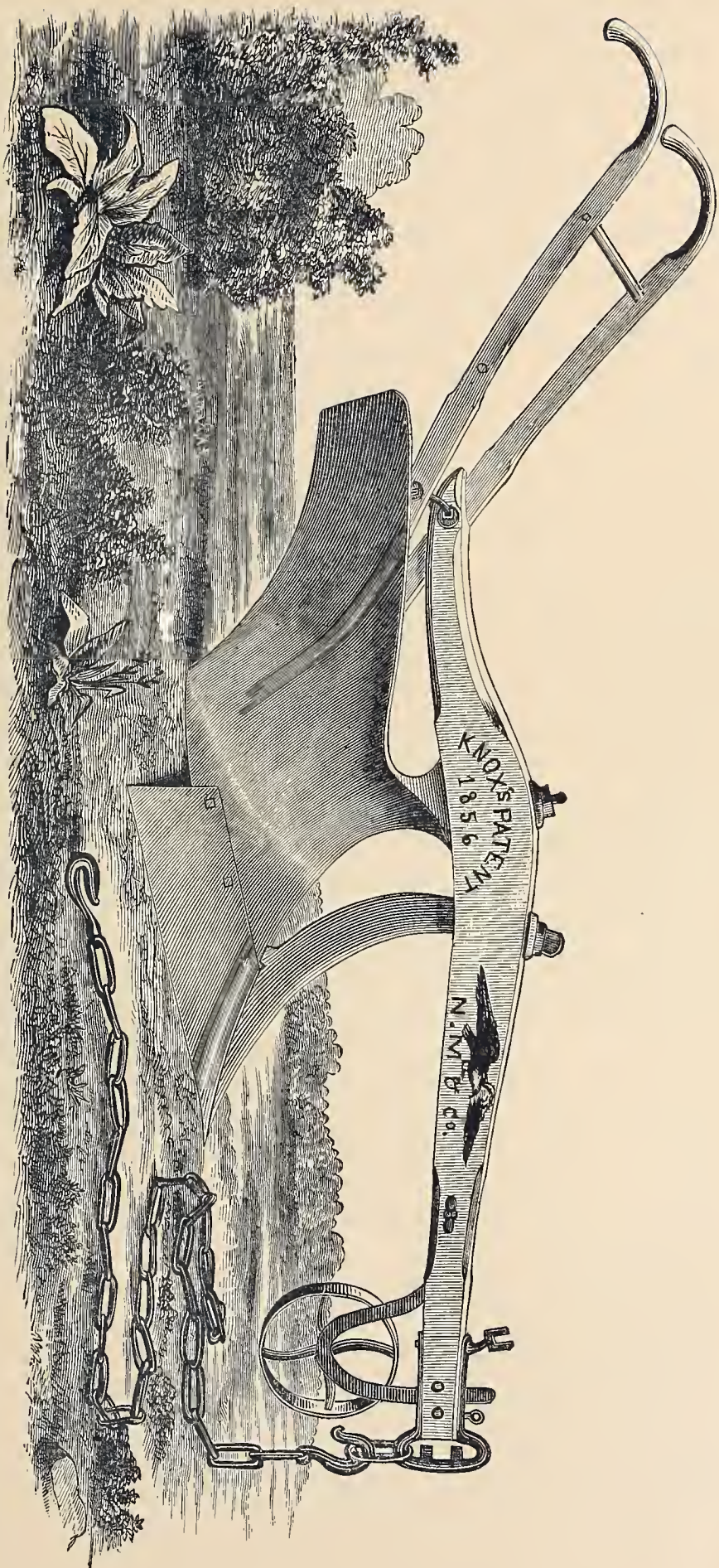


Fig. 250.—EAGLE DEEP-TILLING SOD-PLOW, No. 78.

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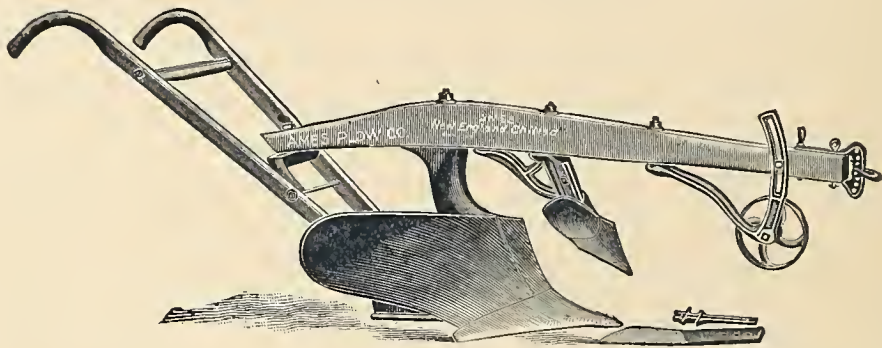
Figures with prefix B are catalogued for first time in this issue.

Figures with prefix AP are Ice Tools and are catalogued for first time in this issue.

## AMES NEW ENGLAND CHILLED PLOWS.

...

*The Ames New England Chilled Plows*, illustrated at *Figs. B 240* and *B 241*, have been perfected during the past few seasons to meet a demand for an improved Chilled Landside Plow suitable for use in all kinds of soil. Careful tests and continued use have resulted in their being pronounced by all who have seen them in operation the most desirable general purpose plows now on the market. This conclusion is due, not only to sterling merit in their operation, but as well to the high quality of material, workmanship and finish, which are unexcelled, if equalled, in any other make, for the same high standard of excellence is maintained in this new series that has so long distinguished the Ames make of plows.



**Fig. B 240.**—New England Chilled Plow, Nos. A-20 and A-40.

The distinctive feature in these plows is the shifting beam pivoted on the standard bolt, by which the width of furrow can be varied, and a uniform depth maintained. Particular attention is called to the superior strength of the NEW ENGLAND over other plows of this type, which in many instances have proved too frail for this section and other places where the same circumstances exist. The use of our hollow V-shaped standard has been wisely continued in these plows, and the standard bolt has been carried down through it to a point below the top of the mould-board, which is the strongest known construction for this part of a plow, on which, especially in plows of this type, comes the greatest strain. The handles are additionally strengthened by an extra brace or tightener to relieve the beam adjuster of all strain and give perfect firmness to the handles and rear end of the beam.

The wearing parts of the plow have been constructed with a view to their being replaced at minimum cost. The mould-board is entirely separated from the standard to which it is bolted, and a separate strip, or shin piece, runs up at the front of mould-board, thus obviating the breakage which is liable where this strip is made as a part of the point or share.

Three sizes are now made, as follows:—

**A-10, One Horse**, for garden and field use, is represented by *Fig. B 241*, and is suitable for stubble-furrows three to five inches deep, by eight to ten inches wide.

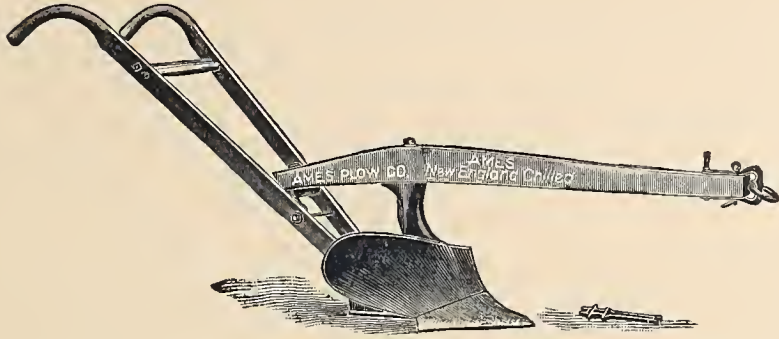


Fig. B 241.—New England Chilled Plow, No. A-10.

**A-20, Medium, Two Horse**, is for sod or stubble-furrows and works from five to seven inches deep, by eleven to thirteen inches wide.

**A-40, Two to Four Horse**, is for sod or stubble-furrows and will turn seven to nine inches deep, by thirteen to sixteen inches wide.

**Trimming.**—The **A-10** is usually sold as shown in *Fig. B 241*. The **A-20** and **A-40** are used with wheel and Jointer or Cutter. The Jointer is shown in position in *Fig. B 240*, and the Cutter, which can be substituted for the Jointer when desired, is shown detached.



## AMES PATENT CHILLED CENTENNIAL SWIVEL PLOWS.

FOR LEVEL LAND, AVOIDING DEAD FURROWS, AND FOR HILLSIDE.

*Ames Patent Chilled Centennial Swivel (Turn-Wrest) Plow*, shown by *Figs. 276 and 277*, is now considered not only the best implement of the kind that has been invented, but as having worked an important revolution in plowing and in the structure of plows, to the lasting benefit of farming.

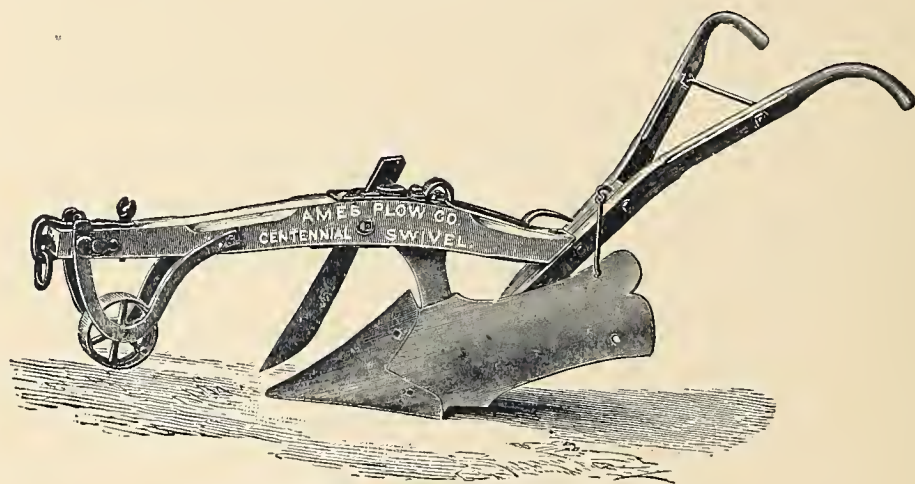


Fig. 276. — Centennial Swivel Plow.

These plows have been fully tested; and for lightness of draft, and quality of work, they have no equal, either for level-land or side-hill plowing.

The objects which we had in view in producing this plow, and which are conspicuous in its construction, have been accomplished beyond a doubt, as proved by the many thousands that have been sold.

The necessity for a SWIVEL PLOW that would do perfect work on level land equally as well as a Landside Plow, and by which the ugly dead furrows that follow the use of the common Landside Plow might be avoided, had long been felt; and the vacancy has been filled by the CENTENNIAL.

It is now known by the users of a SWIVEL PLOW, that, by its use, the work is evenly divided between the team; each horse alternately taking its place in the furrow, and thus avoiding the continual drag on the furrow-horse, which causes the team to quicken its pace, and accomplish more work.

Formerly the SWIVEL PLOW had been chiefly used on hillside land, not being

adapted to a level surface; but, as this plow effects the complete inversion and pulverization of the soil on level as well as inclined surfaces, it is a relief to the eye, tired of the unsightly oblong "lands" and dead furrows made in ordinary plowing, to see the uniform pulverized seed-bed left by this plow as it turns to the right and left in its easy, graceful progress over the field. It possesses symmetry, durability, and simplicity, giving a full-width furrow, completely inverted, and as pulverized and porous as any implement can leave the soil. It works equally as well in rocky and smooth as in wet clay land; the peculiar form and the chilled material of the mould-board preventing it from clogging, or holding on to the soil.

Six sizes are now manufactured, as follows:—

**No. 12, One Horse**, for garden and field use, is represented by *Fig. 277*, and is suitable for stubble-furrows three to four inches deep, and eight to nine inches wide.

**No. 13, Heavy, One Horse**, will plow stubble-furrows four to five inches deep, and nine to ten inches wide.

**No. 14, Light, Two Horse**, will plow sod or stubble four to six inches deep by ten to twelve inches wide.

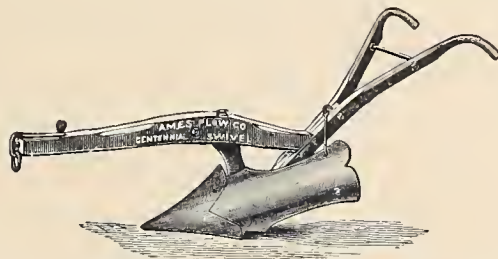
**No. 2 (No. 15 size), Medium, Two Horse**, is a general-purpose plow in the fullest meaning, and, in sod or stubble, works from five to seven inches deep by eleven to fourteen inches wide.

**No. 3 (No. 16 size), Two to Four Horse**, for sod-plowing, will turn six to eight inches deep by twelve to fifteen inches wide.

**No. 4, Four Horse**, for sod-furrows seven to nine inches deep, and thirteen to sixteen inches wide, is the largest size.

We also manufacture a One-Horse Plow which will do full-width work when the horse is walking in the previous furrows.

In the construction of the Two-Horse and larger sizes of this plow, the landside



**Fig. 277. — Centennial Swivel Plow, No. 12.**

or cutting-edge of the share being thrown past the centre of the beam as the plow is turned to the right or left, it becomes necessary, when a cutter is used, that it be moved from right to left, and *vice versa*, as the plow is changed, so that it shall be as nearly as possible on a line with the landside of the share, same as on a Landside Plow. This is provided for by a Movable Cutter, as shown in *Fig. 276*, worked by a lever, which may be quickly shifted as the plow is reversed. Thus this SWIVEL Plow possesses a combination of advantages which has recommended it to universal adoption;

and this is shown by the fast increasing sales, not only where they have already been introduced, but also in sections where a SWIVEL PLOW has not heretofore been used.

**Trimmings.** — The No. 12 size is usually sold, as shown in *Fig. 277*. The No. 13 is usually trimmed with wheel and cutter; while the larger sizes are invariably rigged with wheel and movable cutter, and the draft-rod is sometimes used.

More premiums have been received for these plows at the New-England Society's great annual field trials the past seven years than have been awarded for all the competing plows together.

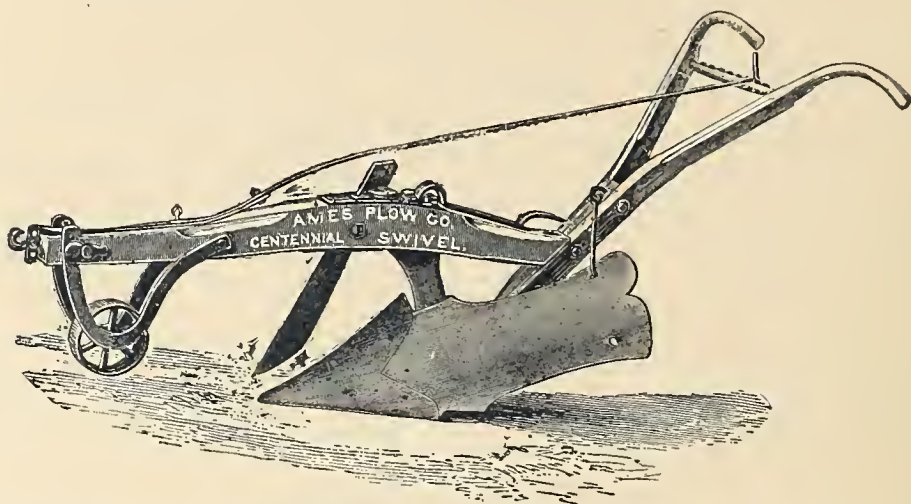


Fig. B 242.—Centennial Swivel Plow with Shifting Clevis.

**The Shifting Clevis,** with steel lever, as shown in *Fig. B 242*, is now furnished on the Centennial plows when so ordered. By its use a number of advantages are attained, and it is considered by many a great improvement in connection with swivel plows. The Shifting Clevis puts the direction of the plow at the command of the plowman, for by simply adjusting the lever in the notches provided between the handles a uniform width and depth can be maintained. For steep hill work especial merit is claimed for the Shifting Clevis, as the plow may be so regulated that it will not have a tendency to work down hill.



## THE HAKES IMPROVED PATENT SWIVEL PLOW

FOR LEVEL LAND, AVOIDING DEAD FURROWS, AND FOR HILLSIDE.

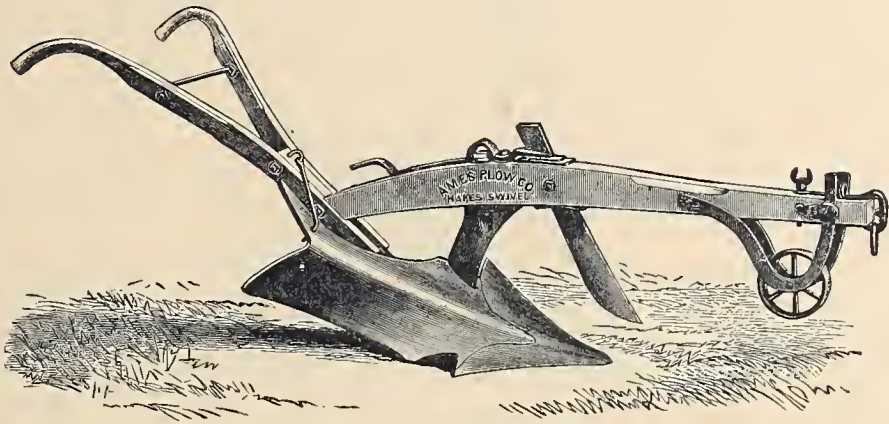


Fig. 289. — Hakes Improved Swivel Plow.

*The Hakes Improved Swivel Plow*, represented by *Fig. 289*, of which we make four sizes, is considered by many the best in use, and in sections where it is known has become quite popular. Its turning and pulverizing qualities are unexcelled, and the importance of thorough pulverization cannot fail to be understood.

The older patterns of Side-hill Plows hang to the centre, and refuse to take land enough; but this plow, overcoming these objections, works on level land equally as well as any Landside Plow, and is also a perfect-working Hillside Plow.

**No. 20**, one horse, is for garden and field use.

**No. 21**, light, for two horses or cattle, turns furrows five to seven inches deep by nine to twelve inches wide.

**No. 23**, a larger size, also for two horses or cattle, will turn furrows five to seven inches deep by ten to fifteen inches wide.

**No. 27**, the largest size, for two or four horses or cattle, will turn furrows six to ten inches deep by twelve to eighteen inches wide.

**Trimming.** — The three largest sizes are almost invariably trimmed with wheel and movable cutter. The movable cutter is necessitated by the cutting-edge of the share being thrown past the centre of the beam as the plow is turned to the right or left.

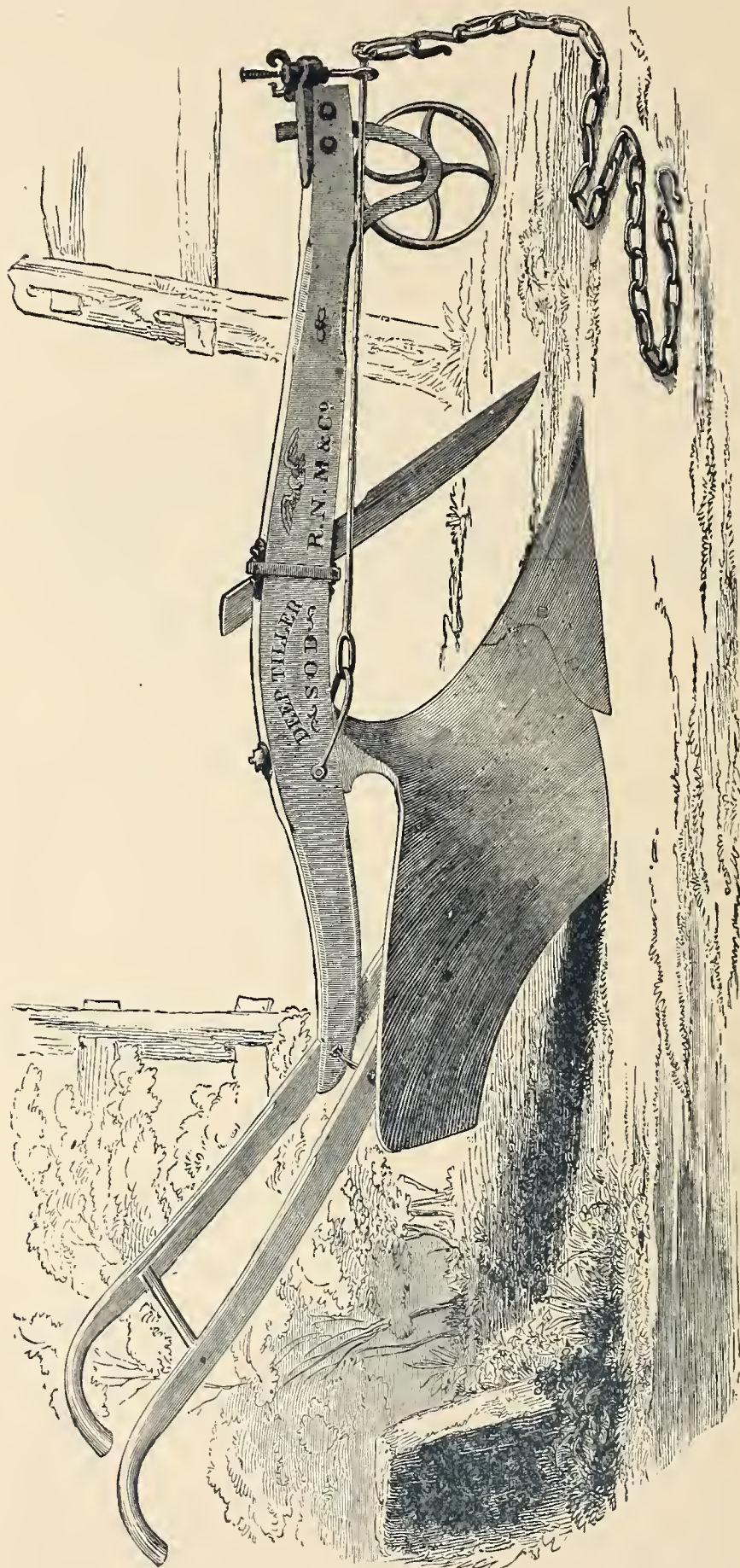


Fig. 257. — Eagle Deep-Tilling Sod Plow, No. 77.



# IMPROVED EAGLE DEEP-TILLING PLOWS. KNOX PATENT.

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*EAGLE, 75, 55, and 25.**STUBBLE.**GREENSWARD.**TELEGRAPH.**SOD AND SUBSOIL.**BOSTON STEEL CLIPPER.*

These plows are constructed by a scale of proportions invented by our artist, Mr. Samuel A. Knox, who obtained letters-patent for his very original and useful invention. His mode of construction is the result of much study and experiment, and admits of all variations necessary to produce long and short mould-boards, with straight lines forming concave or convex surfaces as required for different soils or kinds of work. The mould-boards thus constructed, have such a combination of curved lines as presents an equal bearing against the furrow-slice, and insures an even polish to the entire face of the mould-board; while the furrow-slice undergoes an equal and effectual twist, which lays it down with precision, disintegrating and pulverizing the soil, and leaving it admirably fitted for the reception of atmospheric influences, and free expansion of the roots of vegetation.

We are now enabled to offer as large an assortment adapted to all kinds of soil as can be found, and embracing sizes and forms suited to the peculiarities of a widely varied agriculture.

THE older patterns of Eagle Plows do not, as a general thing, work so deep in proportion to size, and have not a capacity to carry so narrow furrow-slices in proportion to the depth, as the improved deep-tilling series.

We are the originators of the Eagle Brand of Plows and hereby caution all our customers against imitations which other plow-makers are putting upon the market; as being reduced in weight, quality and finish, to the detriment of the durability and the working qualities of the plow they cannot be depended upon.

## IMPROVED EAGLE DEEP-TILLING PLOWS.

### NOS. 75, 55, and 25.

THESE plows are made especially for the colonial markets, where they have become so justly celebrated.

**Eagle Plow, Deep-Tilling, Sod, No. 75**, performs work from six to nine inches deep, and thirteen to fifteen inches wide. With four oxen or horses, it is very effective, performing perfect work at a depth of nine inches, inverting the furrow-slices, flat, even, and very exact, and completely covering the stubble.

This plow is confidently recommended as the best ever produced for use in the preparation of new lands for Indian corn, wheat, and other grain-crops. In many

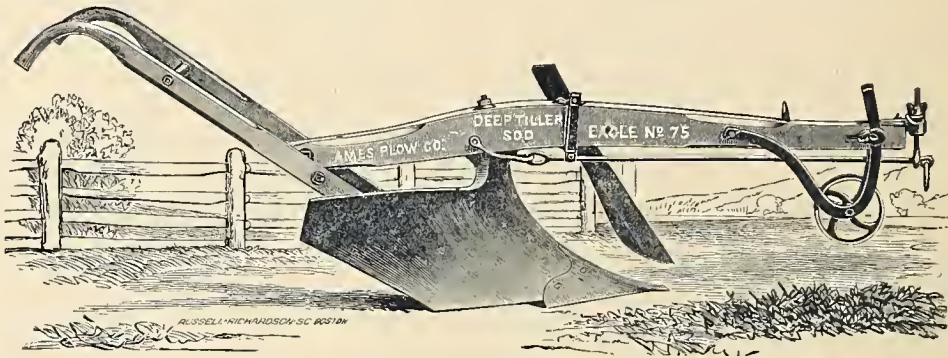


Fig. 258.—Eagle Deep-Tilling Sod Plow, No. 75.

colonial markets, this well-known plow is used, to the exclusion of all others; and, wherever introduced in the grain-producing parts of the world, the demand has increased rapidly; and, for a number of years past, the annual production and sale have far exceeded that of any other kind manufactured.

From facts within our knowledge, we are prepared to state, without fear of contradiction, that the quantity of these plows now in use far exceeds that of any other variety; and the total sales from the first introduction are very much larger in amount than the entire manufacture of any other plow invention or pattern known to the farmers of the world.

**Eagle Plow, No. 55**, is about the same size, weight, and capacity as the No. 75, but differs in form, and, being higher in the standard, is also different in its working qualities.

**Eagle Plow, No. 25**, is an older pattern of the same size, but different in form and working-qualities. It is very strong and durable.

**Trimming.**—These plows for the colonial markets are always trimmed with draft-rod, wheel, and cutter, as represented by *Fig. 258*.

## IMPROVED EAGLE DEEP TILLING PLOWS.

### STEEL. Nos. 75 and 55.

*The Eagle Deep Tilling Plows Nos. 75 and 55* can now be furnished in STEEL as per *Fig. B 245*, reproduced from the iron originals, so that they are exact counterparts in working qualities. This makes a most desirable plow for use in soil composed of vegetable substance, where absence of grit prevents the scouring or polishing of the Iron Plow.

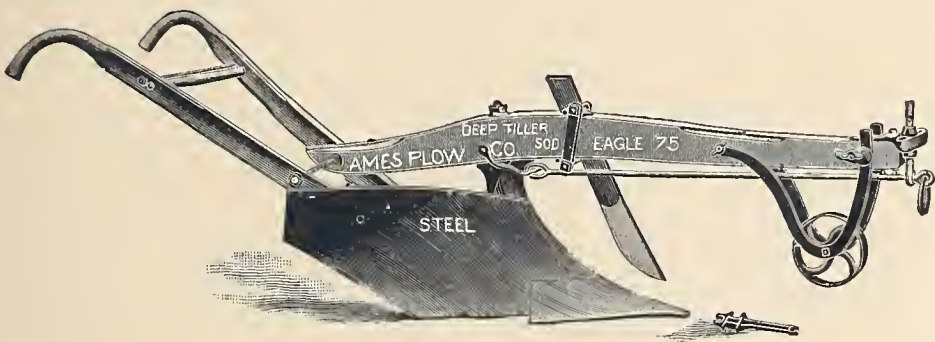


Fig. B 245.—Eagle Deep Tilling Plow, No. 75. Steel.

## IMPROVED EAGLE DEEP TILLING PLOW.

### CHILLED HARD METAL. No. 75.

*The Eagle 75 Plow* has also been reproduced by us in CHILLED HARD METAL, which, while possessing in gritty soil even greater wearing qualities than the ordinary Iron Plow, still presents the same properties for scouring in soil which is free from grit that are found in the Steel Plow. This in connection with the Steel Plow and the original Iron Plow make an assortment from which our customers can choose the plow best suited to their requirements.



## IMPROVED EAGLE DEEP-TILLING PLOWS.

### GREENSWARD.

Eagle 71.		For two horses or cattle.
" 71 1-2.		" " " " "
" 72. Lap.		" " or three horses or cattle.
" 72 1-2.	"	" " " " " " "
" 73.		" " to four horses or cattle.
" 73 1-2.		" " " " " " "
" 76.		" four to six " " "
" 76. Coulter.		" " " " " " "
" 77.		" " " " " " "
" 78. Coulter.		" six to eight " " "

*Eagle Plow, No. 71 1-2*, is a medium two-horse plow. It has a convex mould-board, and turns flatsod furrow-slices five to seven inches deep by eleven to twelve inches wide.

*Eagle Plow, No. 72 1-2*, represented by *Fig. 259*, has a long, narrow, convex-surface mould-board, and is specially designed for stiff clay soils, turning narrow furrow-slices two-thirds as deep as they are wide, and is adapted to work

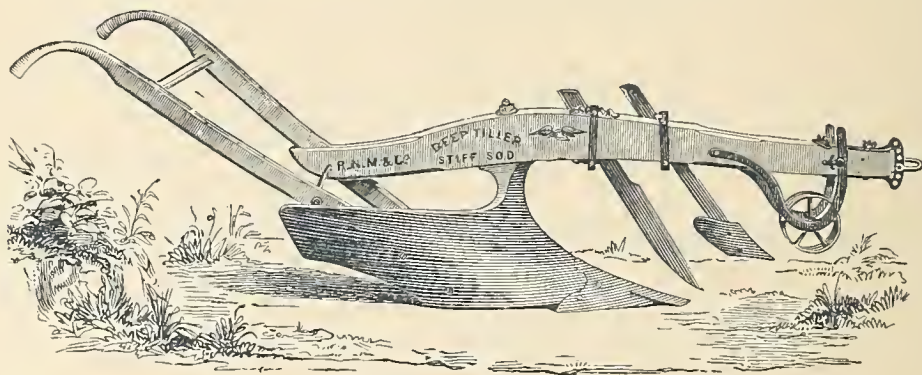
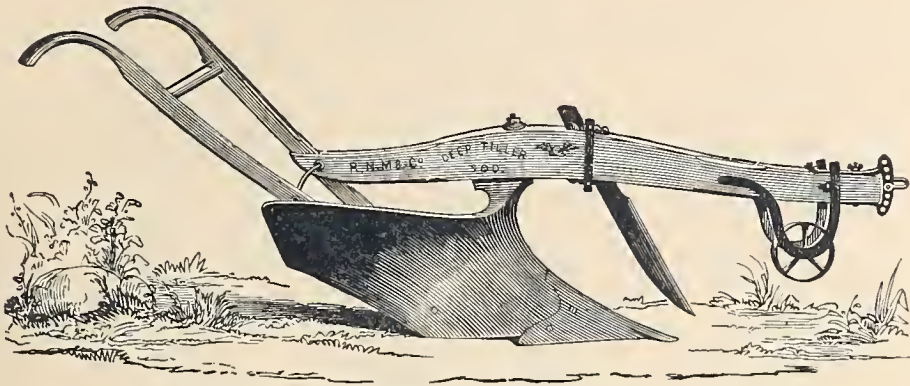


Fig. 259.—Eagle Deep-Tilling Sod Plow, No. 72 1-2.

seven inches deep by eleven inches wide, setting the slices at an inclination of forty-five degrees, which is the position presenting the greatest attainable surface to the action of the atmosphere, and the greatest cubical contents of soil to the action of the harrow in preparing the seed-bed. Clay soil should be plowed in narrow furrows, but not disintegrated, as when plowed with short, abrupt, mould-board plows. Two or three horses are required for draft, according to the work to be done. This plow is rigged with or without the skin-coulter, though this attachment is valuable.

**Eagle Plow, No. 73 1-2**, shown by *Fig. 260*, is adapted to flat or lapped plowing by the use of an inclined eutter for the first, and a straight eutter for the



**Fig. 260 — Eagle Deep-Tilling Sod Plow, No. 73 1-2.**

latter mode; and, while light enough for two horses, it is strong enough for double teams, working in sod six to eight inches deep by twelve to fourteen inches wide.

Its mould-board is of a long, gentle curvature; and for sod-work this plow is without an equal, having taken many premiums at field-trials.

**Eagle Plows, Nos. 71 and 73**, are two-horse plows, turning flat sod furrows from five to seven inches deep by eleven to thirteen inches wide.

**Eagle Plow, No. 72**, for lap-furrow plowing, has a convex mould-board, and is easily drawn by two cattle, working seven inches deep by eleven inches wide.

**Trimming.**—These GREENSWARD PLOWS are usually trimmed with wheel and eutter, although the draft-rod is often used.

**Skim Coulter.**—This attachment, shown in *Fig. 259*, is valuable in disposing of the grass edge of the furrow-slice, thus preventing the growth of grass between lapped furrow-slices. Its use is a convenience when finished lap-work is desired.

**Eagle Plow, No. 76**, will carry a furrow-slice from eight to eleven inches deep by fifteen to seventeen inches wide, and has great turning-power. It is worked by four to six oxen or horses, according to soil and amount of work to be accomplished. For smooth land, this plow is sometimes trimmed with wheel, eutter, and draft-rod, as shown in *Fig. 257*; while when made with loek-coulter and broad steel share, as shown in *Fig. 250*, it is best adapted for rough field-work, and for making and repairing roads.

**Eagle Plow, No. 77**, a size larger, for six or eight horses or cattle, is shown by *Fig. 257*, and is of same general construction as the No. 76, and performs in proportion to size, working from nine to twelve inches deep by sixteen to eighteen inches wide. It is usually rigged with wheel, eutter, and draft-rod.

**Eagle Plow, No. 78**, the largest size made, is always rigged with loek-coulter, broad steel share, and wheel, as represented by *Fig. 250*, and usually with draft-rod. It is very strong, and may be worked by six or eight oxen, turning furrow-slices from ten to fourteen inches deep, and sixteen to twenty inches wide.



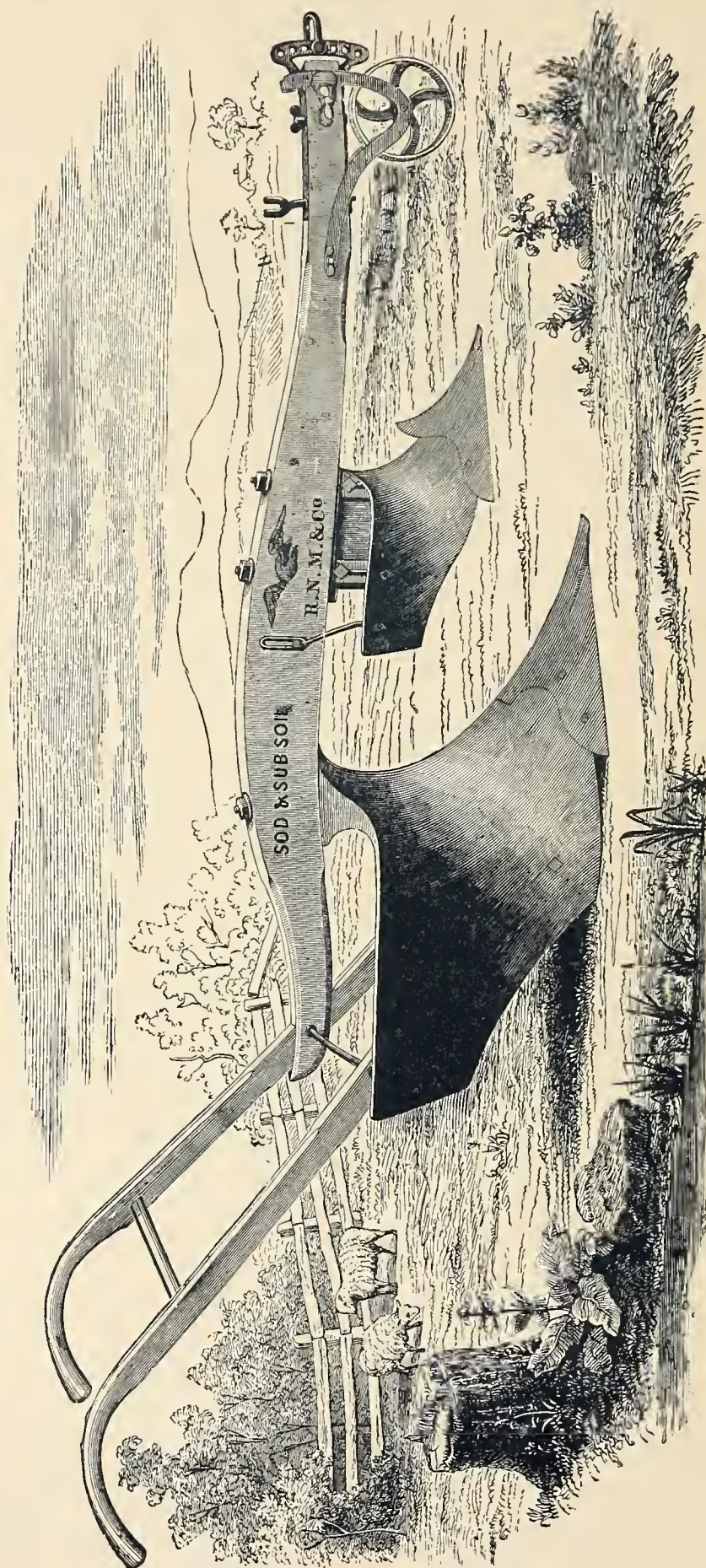


Fig. 261. — Eagle Deep-Tilling Sod and Subsoil Plow, No. 34.

## IMPROVED EAGLE DEEP-TILLING PLOW.

### GREENSWARD AND SUBSOIL.

*Knox Improved Eagle Sod and Subsoil Plow, No. 34*, is represented by *Fig. 261*, and is substantially the same plow as described under STUBBLE PLOWS, with an adjustable forward mould-board connected with the beam in such a manner that the depth of its furrows can be regulated.

The forward mould-board turns the sod furrow-slice as wide as the working of the whole plow; and the earth on top, assuming an arch-like shape, is naturally opened, while the effort of the rear mould-board brings up the deeper soil, placing it upon the sod, and filling the channel, so that the sod furrow-slice is in no case liable to be brought to the surface by harrowing or other process of after-cultiva-

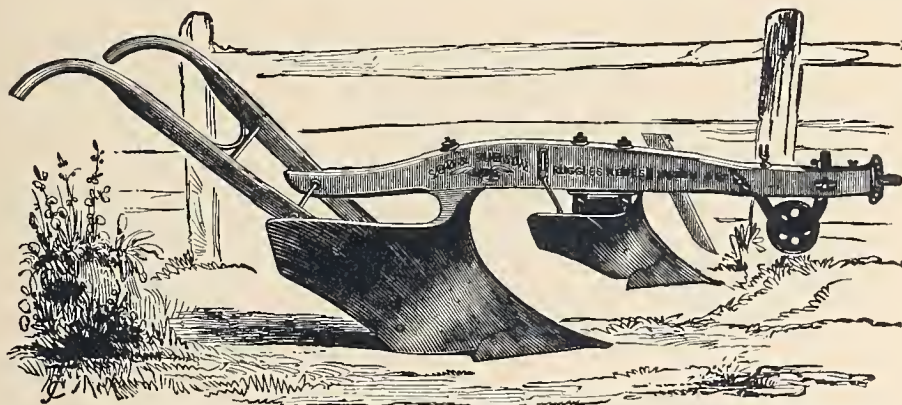


Fig. 262.—Eagle Deep-Tilling Sod and Subsoil Plow, No. 34.

tion; the cohesion of the soil is broken, and the plowed land lies light and mellow, and almost as fine as if harrowed,—indeed, in some soils rendering the use of the harrow quite unnecessary.

The furrow-slices are seven to ten inches deep by ten to fifteen inches wide, and three or four horses or cattle are required for draft.

*Trimming.*—The plow is always trimmed with wheel; and customarily a short cutter is used, with common points, as shown in *Fig. 262*, instead of the fin-point, as shown by *Fig. 261*.



# IMPROVED EAGLE DEEP-TILLING PLOWS.

## STUBBLE.

Eagle 30.		For one horse.
" 31.	Light.	For two horses or cattle.
" 32.	Medium.	" " " " "
" 33.		For two or three horses or cattle.
" 34.		" " to four " " "

*The Eagle Stubble Plows*, which are represented by *Fig. 263*, are very high in the standard, which enables them to keep their course and depth in the ground

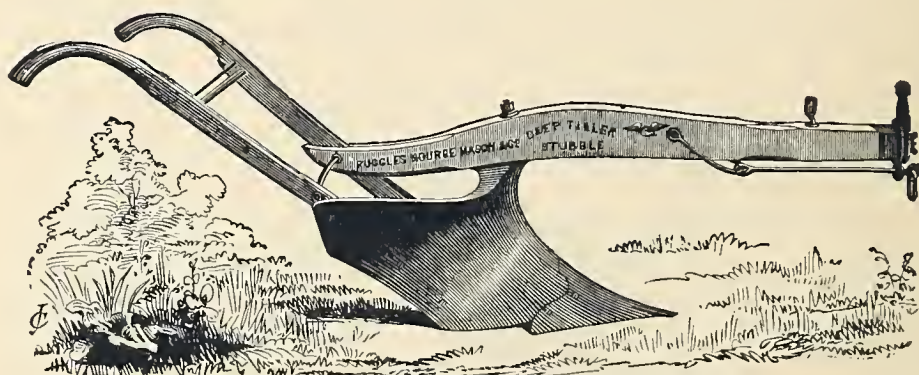


Fig. 263.—Eagle Deep-Tilling Stubble Plow.

without clogging. The mould-boards are short and high, of a capacity for deep work and of great turning-power, which thoroughly disintegrates and pulverizes the soil.

*Eagle Plows, Nos. 30 and 31*, are one-horse and light two-horse plows respectively, working from four to eight inches deep, and eight to eleven inches wide, in proportion to their size.

*Eagle Plow, No. 32*, is a medium two horse or cattle plow, working in stubble from six to nine inches deep by nine to twelve inches wide.

*Eagle Plow, No. 33*, works from eight to ten inches deep by eleven to thirteen inches wide, and requires two or three horses.

*Eagle Plow, No. 34*, for two to four horses, is larger, and, although designed specially for old-ground plowing, does splendid work in greensward, and is much liked by farmers; as, in its working, it leaves the ground well pulverized and light. It turns furrow-slices from seven to eleven inches deep, and twelve to fourteen inches wide. It has taken many premiums at plowing-matches.



*Trimmings.* — The Nos. 32, 33, and 34 plows are sometimes used with wheel; and for sod-plowing, the cutter is also used.

*Jointer, or Skim.* — This attachment is frequently used on the No. 34 plow, instead of a cutter, for sod-plowing.

## EAGLE DEEP-TILLING TELEGRAPH GREENSWARD PLOWS.

KNOX IMPROVED.

*Knox Improved Eagle Telegraph Plow*, represented by *Fig. 265*, is an improvement in Greensward Plows for turning flat furrow-slices. The form of the mould-board is changed in a manner to give it a decided advantage in laying the

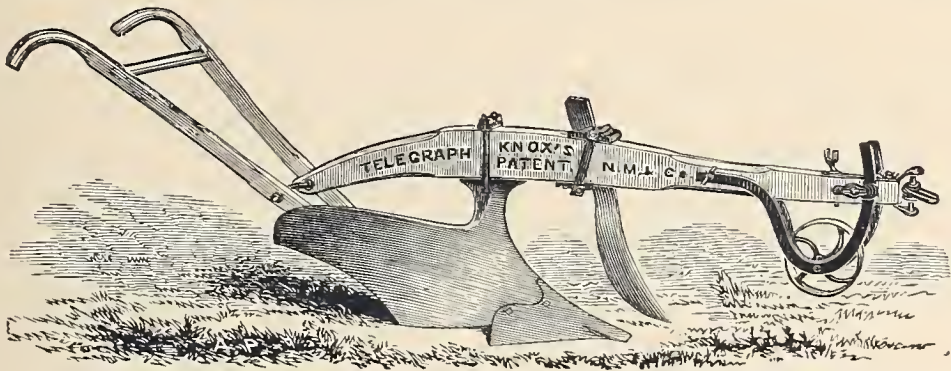


Fig. 265. — Eagle Deep-Tilling Telegraph Plow.

furrow-slice, and it is secured to the beam by a clasp instead of a bolt. The form of the standard, and also the shape of the beam, are varied from the other pattern.

We manufacture three sizes, the working-qualities of each being given below.

*Telegraph Plow, No. 1*, turns a furrow six inches deep by twelve inches wide, and is light for two cattle or horses.

*Telegraph Plow, No. 2*, turns a furrow five to seven inches deep by twelve to fourteen inches wide, and is used with two cattle.

*Telegraph Plow, No. 3*, turns a furrow six to eight inches deep by thirteen to fifteen inches wide, and requires two to four eattle.

*Trimmings.* — The TELEGRAPH PLOWS are usually rigged with wheel and cutter, although the draft-rod may be used.

CHILLED HARD METAL. The No. 3 size can be furnished in Chilled Hard Metal, which adds much to the wearing and scouring qualities of the plow.

## IMPROVED DEEP-TILLING BOSTON STEEL CLIPPER' PLOWS.

SOILS largely composed of vegetable substances, with little perceptible flinty or inorganic matter intermixed, and lying loosely after the sod has been broken and subdued, present very little friction or scouring-quality. Steel being a finer and less porous metal than cast-iron, and less affected by rust, requires less friction to give it the necessary polish, and is therefore considered a desirable material for the construction of the mould-board, share, and landside of plows for working such soils. These considerations induced us to duplicate in steel a portion of the improved cast-iron plows named in the preceding pages.

### GREENSWARD PLOWS.

U G 3 1-2.		For two or three horses or cattle.
U G 4.	Left hand.	" " " " " "
U G 5.		" " " " " "
X 6 1-2.		" four horses or cattle.
W B 2.	Lap.	" two to three horses or cattle.
W B 2.	Scotch Lap.	" " " " " "

*Boston Steel Clipper Plow, U G 3 1-2, represented by Fig. 266, is of easy*

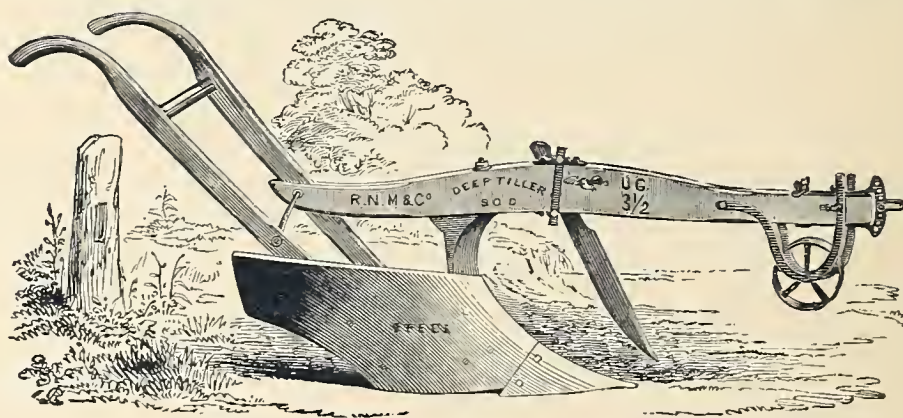


Fig. 266.—Boston Steel Clipper Plow, U G 3 1-2.

draft for two or three horses at a depth of five to eight inches, and a width of twelve to fourteen inches. The mould-board is of that equal curvature which will cause it to polish in any soil. It has received many premiums for its excellence of work. This is a duplicate of EAGLE 73½ CAST-IRON PLOW.

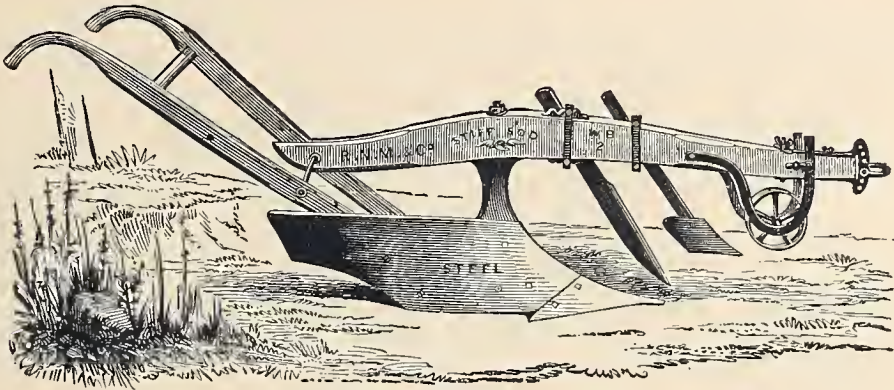
*Boston Steel Clipper Plow, U G 5, constructed the same as U G 3½, is for plowing five to eight inches deep, and fourteen to sixteen inches wide.*



**Boston Steel Clipper Plow, U G 4**, is same as U G 5, but is left hand.

**Boston Steel Clipper Plow, X 6 1-2**, is for breaking prairie-land, its extreme width especially adapting it for this kind of work. It turns furrow-slices six to ten inches deep by sixteen to eighteen inches wide, and requires four horses.

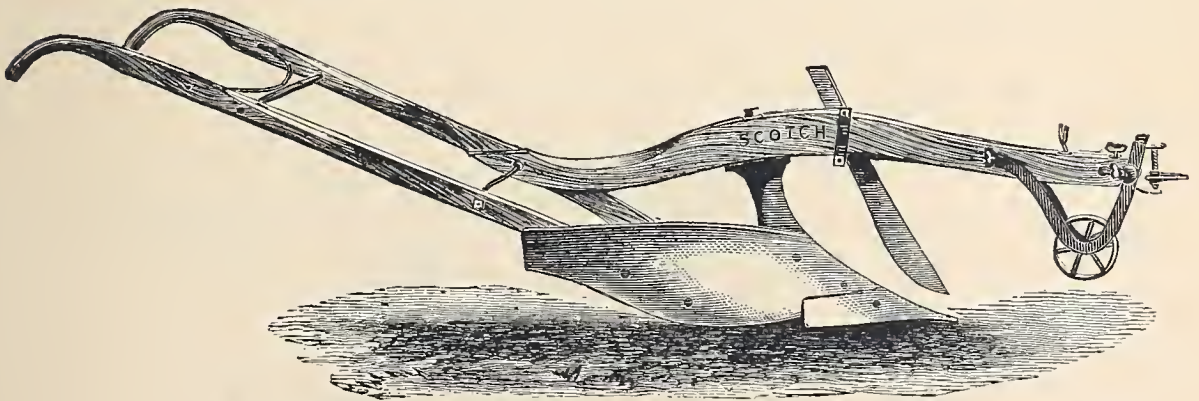
**Boston Steel Clipper Plow, W B 2**, shown by *Fig. 267*, is finely adapted to working stiff clay-sod lands in deep, narrow, lapped furrows. It will plow seven



**Fig. 267.**—Boston Steel Clipper Plow, W B 2.

inches deep by ten inches wide in the most adhesive clay soil, and will take less depth or more width of furrow-slice, as may be desired. It is an easy draft for two or three oxen or horses. This is a duplicate of EAGLE 72½ CAST-IRON PLOW.

**Scotch-American Steel Plow, W B 2**, represented by *Fig. 268*, is in substance the BOSTON STEEL CLIPPER PLOW, W B 2, described above, but possessing the peculiarities of the Scotch Plow; namely, the long handles and extended



**Fig. 268.**—Scotch-American Steel Plow, W B 2.

bearings, which give it a steadiness in the furrow not possessed by any other plow. It is particularly adapted to large fields and long bouts, and it is difficult to persuade a Scotchman that so thorough a tillage can be accomplished by any rival implement. For turning greensward and handsome lap-furrows, it has no superior: the draft is light, and the plow is handled by the workman with ease. On large fields free from bowlders and stumps, where there is full sweep for the long handles, the popularity of this plow increases in proportion to its use.

**Trimmings.**—These GREENSWARD PLOWS are usually trimmed with wheel and cutter, although in some sections the draft-rod is used.

**Skim Coulter.**—The skim-coulter, shown in *Fig. 267*, a useful and valuable attachment, disposes of the grass-edge of the slice, thus preventing the growth of grass between lapped furrow-slices. Its use is a convenience where finished lap-work is desired. We frequently furnish this attachment with our SCOTCH-AMERICAN PLOW.

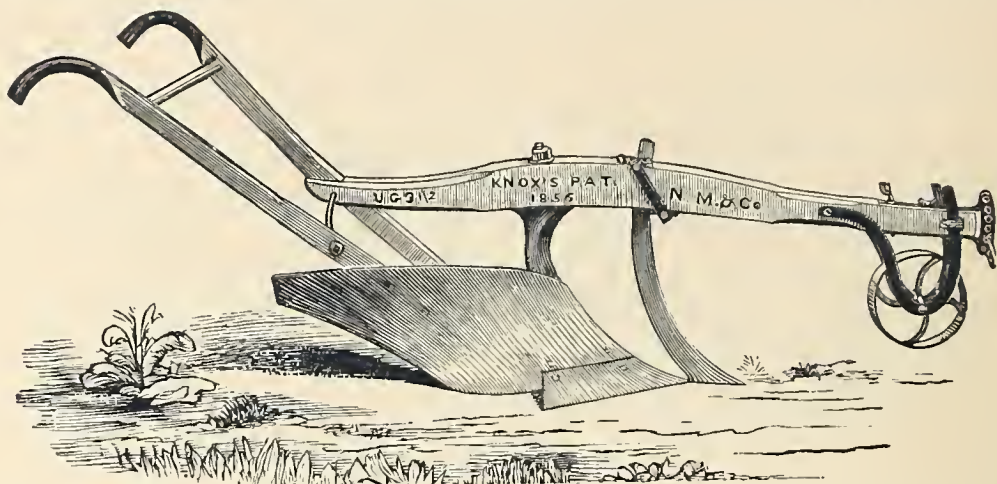


Fig. 269.—Boston Steel Clipper Plow, with Peacock Coulter.

**Circular Cutter and Peacock Coulter.**—In *Fig. 270* the Circular Cutter is shown, and the Peacock Coulter is shown in *Fig. 269*. These are used for breaking up prairie and grassy sod lands; some preferring one, and some the other fixture, although the Circular Cutter is more generally used.

## SOD AND STUBBLE PLOWS.

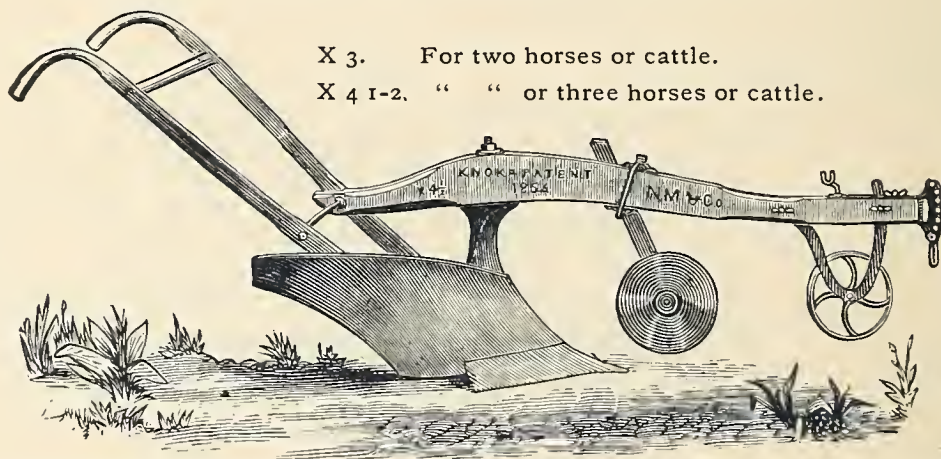


Fig. 270.—Boston Steel Clipper Plow, X 4 1-2, with Circular Cutter.

**Boston Steel Clipper Plows, X 3 and X 4 1-2**, represented by *Fig. 270*, will give entire satisfaction to those desiring plows both for sod and stubble work. The X 3 is intended for two horses, and for stubble-furrows five to seven inches deep by ten to twelve inches wide; while, with a two or three horse team, the X 4½ will turn stubble-furrows six to eight inches deep by twelve to fourteen inches wide. These plows work wider in greensward.



**Trimmings.**—For stubble-work, the X 3 and X 4½ Plows are rigged either with or without the wheel; while, for sod-plowing, the same attachments are used as already described for GREENSWARD PLOWS.

## SOD AND SUBSOIL PLOWS.

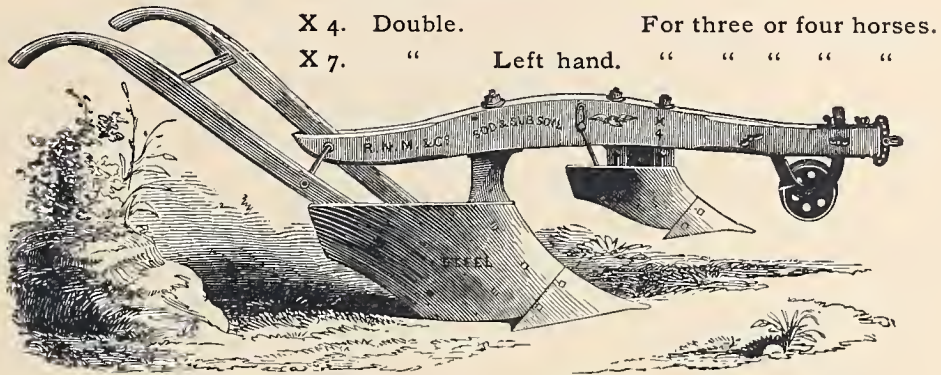


Fig. 271.—Boston Steel Clipper Double Plow, X 4.

**Boston Steel Clipper Sod and Subsoil Plow, X 4**, represented by Fig. 271, is same in its working-properties as the EAGLE 34 SOD AND SUBSOIL PLOW, a description of which will be found on page 18.

**Boston Steel Clipper Sod and Subsoil Plow, X 7**, is a left-hand plow, of size corresponding to the X 4 right hand.

## STUBBLE PLOWS.

X 00.	Light.	For one horse.
X 0.	"	" " "
X 1.	Medium.	" " "
X 1 1-2.	Light.	" two horses or cattle.
X 8 1-2.	Medium.	" " " " "
X 9.	Left hand.	" " " " "
X 7.	" "	" " or three horses or cattle.

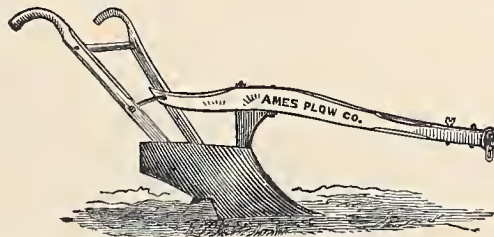


Fig. 272.—Boston Steel Clipper Plows, X 00 and X 0.

**Boston Steel Clipper Plows, X 00 and X 0**, Fig. 272, are both small, intended for use at the South and elsewhere in preparing and cultivating old ground, and require the draft of a small horse or mule.

**Boston Steel Clipper Plow, X 1**, represented by Fig. 273, is a one-horse plow, adapted to adhesive soils, working four to six inches deep, and nine to ten inches wide.

**Boston Steel Clipper Plow, X 1 1-2**, a light two horse or cattle plow,

adapted for plowing stubble or old ground, turning furrow-slices from four to eight inches deep, and ten to twelve inches wide, is next in size.

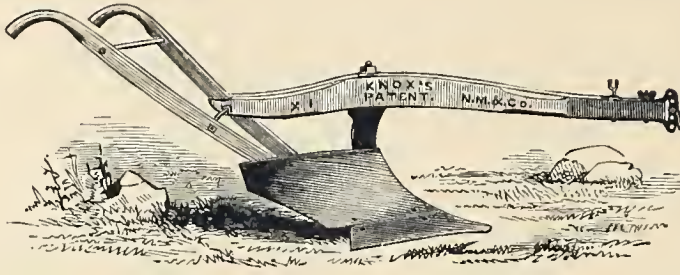


Fig. 273. — Boston Steel Clipper Plow, X 1.

*Boston Steel Clipper Plow, X 8 1-2*, represented by Fig. 274, is made extra high in the standard, and is specially designed for prairie or old-land plowing. It has

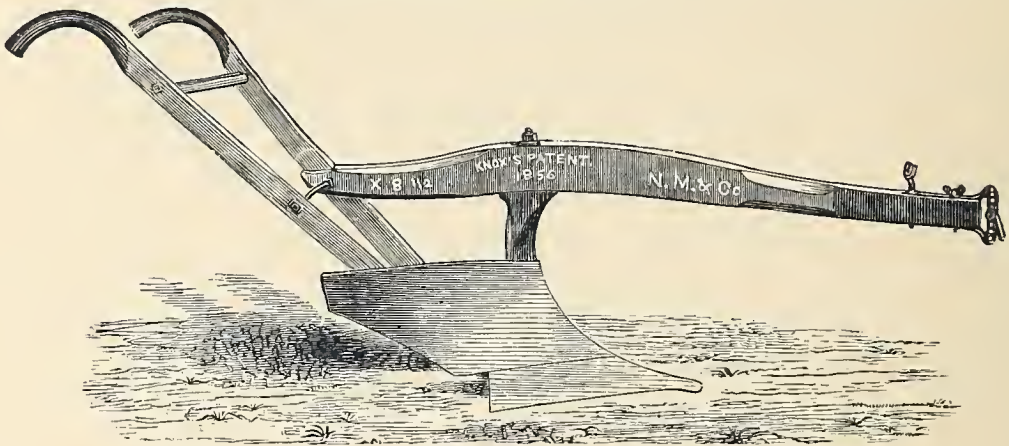


Fig. 274. — Boston Steel Clipper Plow, X 8 1-2.

a short mould-board, is a thorough pulverizer and a deep worker, carrying furrow-slices from five to ten inches deep, and ten to fourteen inches wide, and will polish and work free and clear in all soils. It is of easy draft for two cattle or horses.

*Boston Steel Clipper Plow, X 9*, is a duplicate of the X 8½, but left hand.

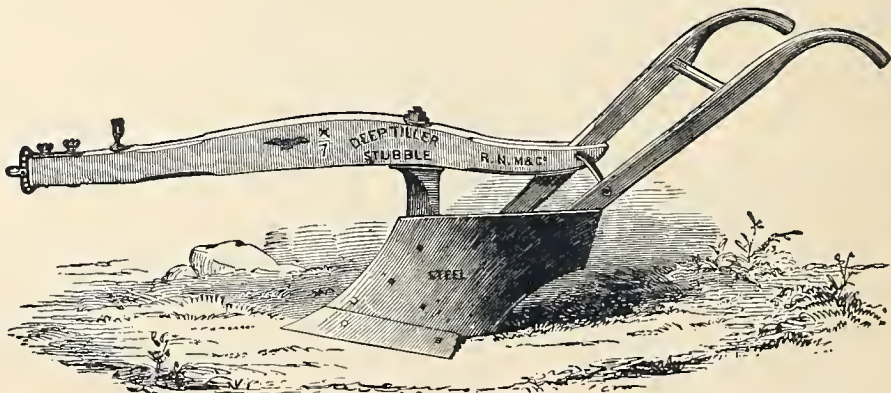


Fig. 275. — Boston Steel Clipper Plow, X 7, Left Hand.

*Boston Steel Clipper Plow, X 7, Left Hand*, is adapted to same purposes as the X 8½, requiring for draft two or three horses, according to amount of work.



## IMPROVED EAGLE PLOWS.

THE Eagle trade-mark of plows was originated many years ago by our predecessors. From an early period it has possessed a wide celebrity; and its pre-eminence is still maintained over attempts by other plow-makers to imitate them in form, and then by putting upon such imitations the same numbers and names as those on the original, endeavoring to pass them as the genuine Eagle Plows. We desire to hereby caution all our customers against these imitations; as being reduced in weight, quality, and finish, to the detriment of the durability and the working-qualities of the plow, they cannot be depended upon.

These plows are designed for various conditions of soil and cultivation, doing the work in an accurate and highly finished manner; are strongly made, and well adapted to plowing lands of a rough, uneven surface. They are still having a large sale, and are extensively used in the United States and foreign countries.

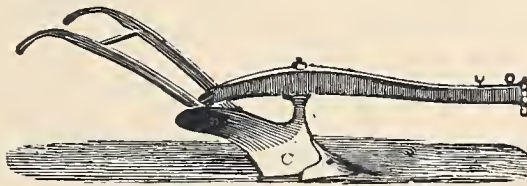


Fig. 252. — Improved Eagle Plow, No. A.

Eagle A.	For one horse.	Stubble.
" 0.	For one horse or two mules.	"
" 1.	Light. For two horses or cattle.	Sod and stubble.
" 1. Coulter.	" " " " " "	" " "
" 2.	Medium " " " " " "	" " "
" 2. Coulter.	" " " " " "	" " "
" 20.	For four horses or cattle.	" " "
" 20. Coulter.	" " " " " "	" " "
" 1. Lap.	For two horses or cattle.	" " " Lap-furrows.
" 2. "	" " " " " "	" " " " "

**Eagle Plow, No A**, represented by *Fig. 252*, is an ordinary one-horse plow.

**Eagle Plow, No. 0**, is a size suitable for one horse at the North, or for two mules at the South. It is sometimes trimmed with wheel, or wheel and cutter.

**Eagle Plow, No. 1**, is a light, easy draft for two horses or oxen, for turning a sod furrow-slice four to six inches deep, and ten to twelve inches wide.

**Eagle Plow, No. 2**, a size larger, is a medium two-horse plow. It is adapted for furrow-slices five to seven inches deep by twelve to fourteen inches wide, and will work some deeper in stubble-plowing.

*Eagle Plow, No. 20*, is very strong, requiring four cattle, and is adapted to

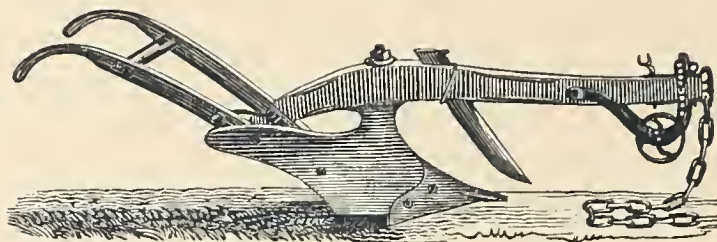


Fig. 253. — Improved Eagle Plow, with Wheel and Cutter.

heavy work, having a mould-board of great turning-power. It will plow eight to ten inches deep with double teams.

*Trimming.* — The IMPROVED EAGLE PLOWS, Nos. 1, 2, and 20, are usually

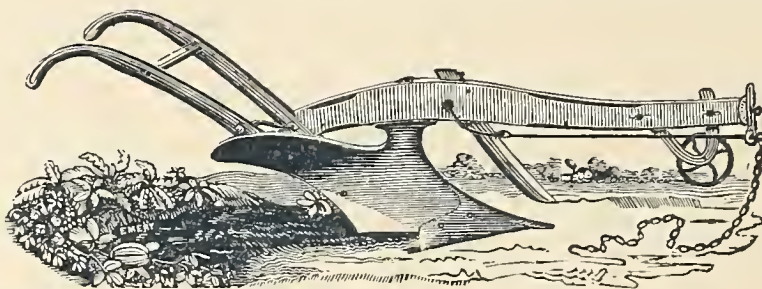


Fig. 254. — Improved Eagle Plow, with Draft-Rod, Wheel, and Cutter.

trimmed with wheel and cutter, as represented by *Fig. 253*; although the larger sizes are often furnished with a draft-rod, as shown by *Fig. 254*.

*Lock-Coulter Plows.* — The IMPROVED EAGLE PLOWS, Nos. 1, 2, and 20, are also made with coulter locking into the share and mould-board, as represented in *Fig. 255*, thus additionally adapting them for plowing stony, stumpy, or rough, uneven lands. The lock-coulter, steel-edged, being very strong and sharp, cuts off any roots,

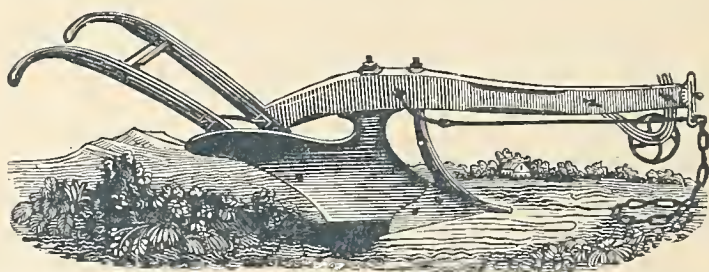


Fig. 255. — Improved Eagle Lock-Coulter Plow.

and clears a way for the plow through any obstacles below the reach of an ordinary cutter.

*Eagle Plow, No. D, Lock Coulter*, is always made with the coulter locking into the share and mould-board. This is very popular as a strong and durable plow and is used in addition to ordinary requirements as a road plow and for any rough work.



**Lap-Furrow Plows.** — EAGLE Nos. 1 and 2 LAP-FURROW PLOWS, modelled after the celebrated Scotch Plow, are long, narrow, powerful, and suited to heavy clay soils; the No. 1, for furrows six to seven inches deep by nine to eleven inches wide; the No. 2, a size larger, for furrows seven to eight inches deep by ten to thirteen inches wide; trimmed usually with wheel and cutter, although the draft-rod may be used.

## IMPROVED MEADOW OR BOG PLOWS.

For breaking up and reclaiming peat meadows and bogs, plows are not capable of performing adequate work unless specially arranged for the purpose.

The meadow fixtures consist of the reversed or drag cutter, the lock-coulter, a wide steel or steel-edge share, the wheel, and the draft-rod. It is customary with us to additionally strengthen plows intended for this purpose with extra brace-rods.

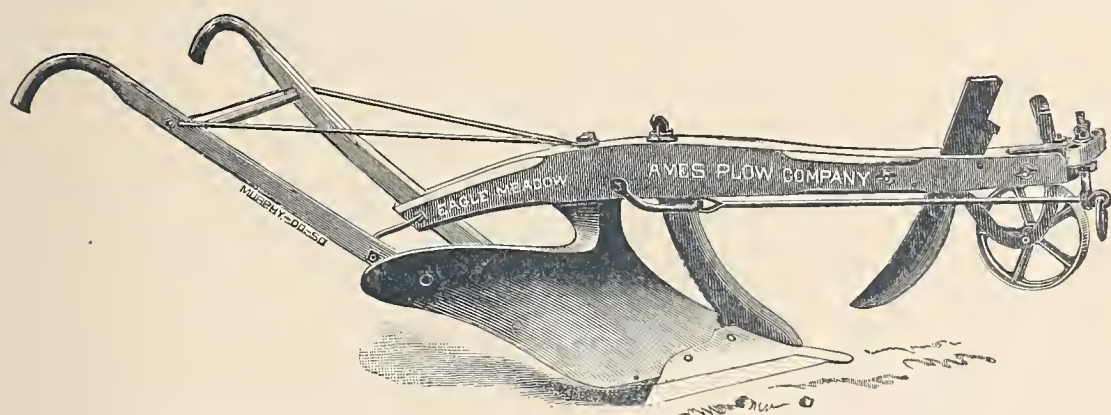


Fig. 278. — Improved Eagle Meadow or Bog Plow.

The perfect *Meadow or Bog Plow* is shown by Fig. 278.

**Drag Cutter.** — In plowing low peat-meadows and recently drained swamps, the tendency of the spongy sod is to gather in large masses before a cutter set in the ordinary way; and this difficulty is avoided by the use of the drag-cutter, as its position is such that it makes a drawing clean cut through the sod.

**Lock Coulter.** — The lock-coulter, steel-edged, being very strong and sharp, cuts off any roots, and clears a way for the plow through any obstacles below the reach of the drag-cutter, or which it may have failed to separate in its course through the soil.

**Share.** — The wide steel or steel-edge share, with its sharp cutting-edge, completely severs to the extent of the entire width of the furrow-slice, roots of any kind that may have reached as low as the bottom of the furrow.

Thus the spongy slice of meadow soil, being separated by these various fixtures

from the unplowed land on all sides, is readily taken up and completely turned over by the mould-board of the plow, and laid in a neat, finished manner.

**Draft-Rod.** — The draft-rod may be turned to the left of the plow-beam or wheel so far as to permit the off horses or oxen to walk upon the turf of the unplowed land, thus avoiding the difficulty and fatigue of travelling in the soft, miry furrow-channel; and it may be changed to the right of the plow-beam, allowing the plowman to run his plow close alongside a fence or ditch, with room for the team to travel without crowding, and turn the slice from the ditch or fence.

The plows most fully adapted for this particular work are named below.

**Eagle Plow, No. 2, Lock Coulter,** for two or three cattle, is adapted to turn furrow-slices four to seven inches deep by twelve to fourteen inches wide.

**Eagle Plow, No. 20, Lock Coulter,** for three or four cattle, will turn furrow-slices six to nine inches deep by thirteen to seventeen inches wide.

**Eagle Plow, No. 76, Lock Coulter,** for four to six cattle, performs work seven to ten inches deep, and fourteen to eighteen inches wide.

**Eagle Plow, No. 78, Lock Coulter,** for six to eight cattle, is suitable for furrow-slices nine to fourteen inches deep by sixteen to twenty inches wide.

**Ames Patent Chilled Centennial Swivel Plows, Nos. 2, 3, and 4,** already described on pages 10 and 11, when furnished with steel-edge point will do completely satisfactory meadow or bog work.



Fig. 279. — Eagle Plow, P Series.

*The P series of Eagle Plows* are represented by *Fig. 279*, and in the markets where they are so well known, and where they give entire satisfaction, need no further description.



*Eagle Plows, P 18, P 18 1-2, and P 19, One-Horse*, are adapted for old ground.

*Eagle Plow, P 19 1-2*, is the favorite size of this series, thousands being sold by us yearly. It is an easy draft for two light horses or oxen.

*Eagle Plows, P 20 and P 21*, larger sizes, are for two horses or oxen.

*Eagle Plow, P 22*, still larger, is for three cattle or horses.

*Trimming*s. — This series of plows are trimmed usually with wheel, as illustrated; but for some markets they are always trimmed with rod, wheel, and cutter.

*One-Handle Plows*. — For certain markets, quite a large proportion of this P series of plows are made with one handle instead of with two, as illustrated.

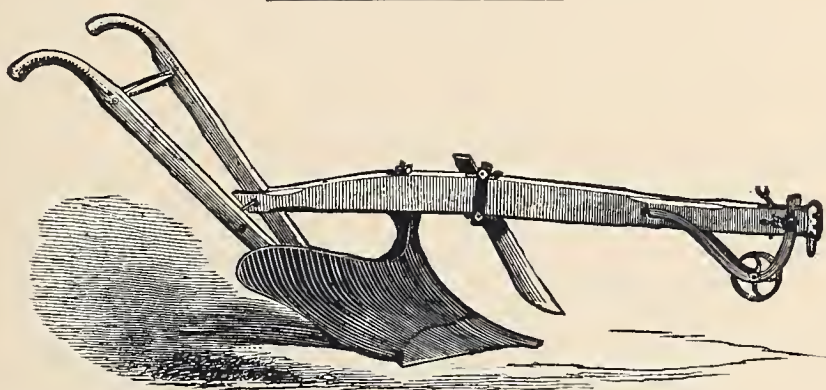


Fig. 280. — Eagle Plow, No. 36.

*Eagle Plow, No. 36*, represented by *Fig. 280*, is a light sod-plow of easy draft for two horses or cattle. In certain markets it has become extremely popular, and large numbers are sold. It is usually trimmed with wheel and cutter.

*Eagle Plow, No. 14*, a light, one horse or mule plow, calculated to carry a wide furrow in a light or sandy soil, is well adapted to Northern or Southern culture.

*Eagle Plow, No. 14 1-2*, the same size as No. 14, has extra strong, heavy eastings for rough, rugged, or stiff soils.

*Eagle Plow, No. 15*. — A single horse or mule plow of same construction as No. 14½, one size larger.

*Eagle Plow, A 1*, a light, one horse or mule plow, better calculated for a clay soil, is much used among cotton and corn, as well as for furrowing out or drilling.

*Eagle Plow, A 2*. — A single horse or mule plow, same in construction as A 1, but one size larger.

*Eagle Plow, 1 B*, a large, one-horse plow, frequently used with two horses, is represented by *Fig. 281*.

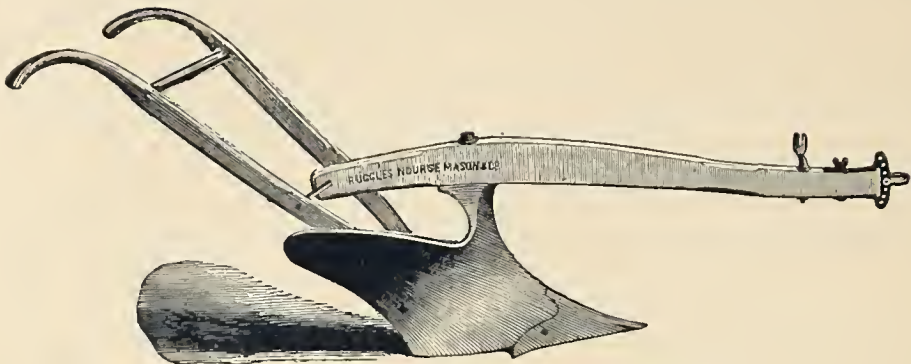


Fig. 281. — Eagle Plows, 1 B and 2 B.

*Eagle Plow, 2 B*, a two-horse plow, same as 1 B. but one size larger, is much liked at the North and South.

*The Steel Cotton Plow*, represented by *Fig. 282*, was invented to take the place of the small, cheap, cast-iron plows so commonly in use in the South. The mould-board of steel is ground and polished, which prevents the soil from adhering,

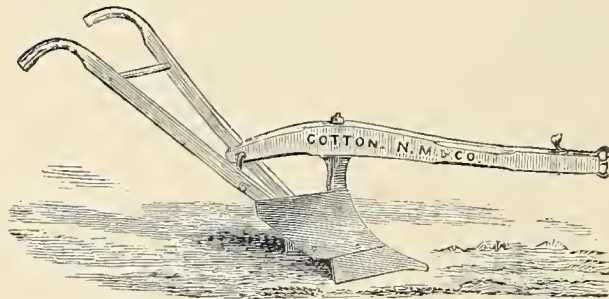


Fig. 282. — Steel Cotton Plow.

as in the case of many of the old cast-iron mould-boards, and in this respect must recommend itself. The durability of this plow, compared with the common cast-iron plow used for this purpose, is a consideration which should not be overlooked; and its cheapness is then apparent.

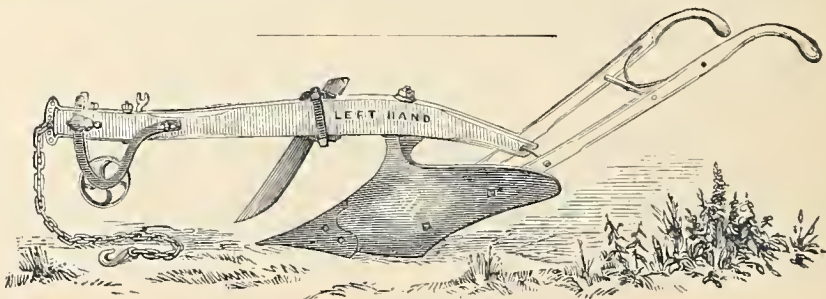


Fig. 283. — Eagle Left-Hand Plows, Nos. 46 and 47.

*Eagle Plows, Nos. 46 and 47, Left Hand*, represented by *Fig. 283*, are strong, powerful plows for two or more horses or cattle, according to amount of work to be performed. They are trimmed usually with wheel and cutter.



## EAGLE PLOWS

WITH SELF-SHARPENING AND ADJUSTABLE STEEL POINTS.

No.	o.	Small.	For one horse or mule.	Stubble.
"	1.	Light.	" " " " "	"
"	2.	For one horse.		"
"	3.	Medium.	For two horses or cattle.	Sod.
"	4.	Large.	" " " " "	"
"	5.	For two to four horses.		"
"	40.	Left hand.	" " horses.	"
"	41.	" "	" three or four horses.	"

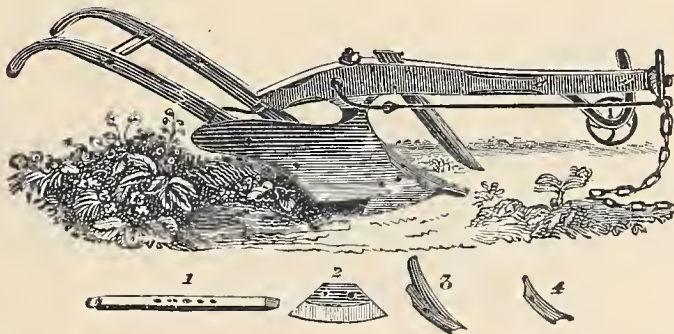


Fig. 284.—Eagle Self-Sharpener Plow.

*The Eagle Self-Sharpener Plows*, represented by *Fig. 284*, are of same form and general construction as the other celebrated EAGLE PLOWS, except that the point and share or wing are made separate, and upon an approved self-sharpening principle. The point shown detached at No. 1 is simply a bar of steel, sharpened at each end, about twelve to fifteen inches long, which passes upward into the body of the plow, where it is confined with one bolt. As this bar is worn on the under side, and becomes shorter, it is readily moved forward, and turned the other side up, thus always presenting a sharp point of full length and proper shape; and when one end is worn off five inches, the other end is placed forward, and performs a like service. The wing, as shown detached at No. 2, is made of cast-iron, and is also reversible, being used either end forward, or either side up. There is a cap of cast-iron, a little back and above the point shown detached at No. 4, which protects the shin or forward part of the mould-board, and is confined in its place by the same bolt that holds the point. Fin-caps are sometimes made, as represented at No. 3.

*Trimmings.* — These plows for the colonial markets are trimmed with rod, wheel, and cutter; although for other markets they are trimmed similar to other plows for that market.

## HILLSIDE OR SWIVEL (TURN-WREST) PLOWS.

WE manufacture seven sizes of this series of plows, which are so constructed that the mould-board is easily and instantly changed from one side to the other, which enables the operator to perform the work horizontally upon hillsides, going back and forth on the same side, and turning all the furrow-slices downward. This prevents the washing of the soil by heavy rains, to which all hillsides are more or less liable when plowed up and down the slope. They are much liked at the South for level-land plowing; for by this system of turning and laying the soil, it is prevented from being

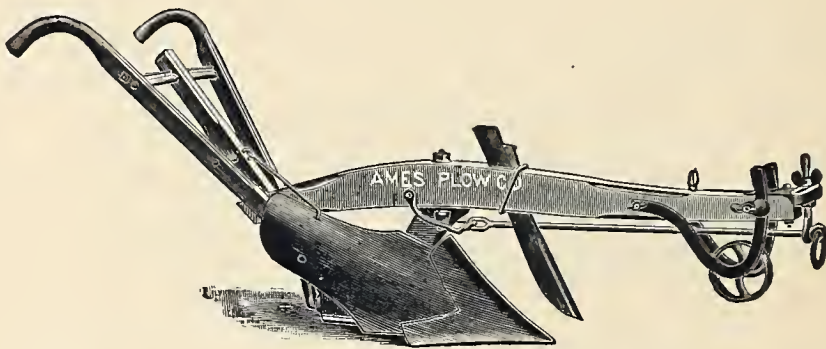


Fig. 285.—Hillside or Swivel Plow, A 1 1-2.

washed in those deep gullies so destructive to the general face of the country. It is likewise useful in enabling the plowman to turn the furrow-slice from his walls and fences. The HILLSIDE PLOW is represented by *Fig. 285*.

**Hillside Plow, No. 0**, is a light, one horse or mule plow, more particularly designed for horizontal plowing at the South.

**Hillside Plow, No. 00**, is a large, one-horse plow for the North, or suitable for two mules at the South.

**Hillside Plow, B 1**, is a light, two horse or cattle plow for sod or stubble.

**Hillside Plow, A 1 1-2**, is a medium, two-horse plow for same purpose.

**Hillside Plow, A 2**, is a large, two-horse plow, sometimes used with three or four cattle, according to the nature of the soil.

**Hillside Plow, A 3**, is a large, four or six cattle plow, made very strong. It is suitable for heavy farm or road work.

**Trimming.**—These plows are rigged, except the smallest size, generally with wheel and cutter, and for some markets with draft-rod.

## AMES STEEL SWIVEL PLOWS.

FOR HILLSIDE AND LEVEL LAND.

*The Steel Swivel Plows* are similar to the Iron Hillside Plows just described but have steel mould-boards of such form that they will scour and clean in the most adhesive soil.

*Steel Swivel Plow, B-1*, illustrated at *Fig. B 248*, is suitable for two horses or cattle in either sod or stubble.

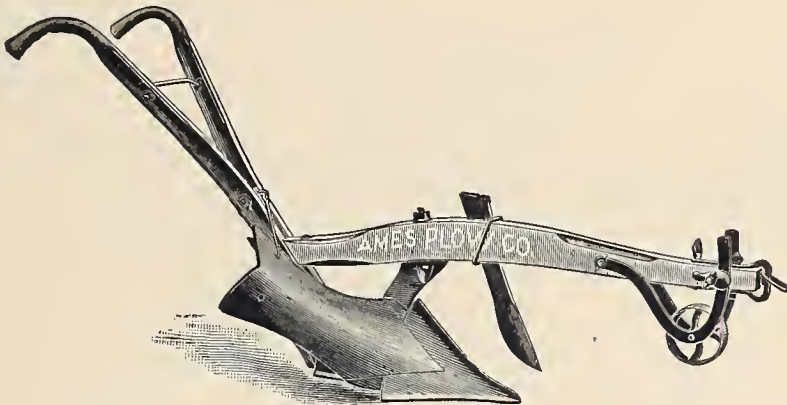


Fig. B 248.—Steel Swivel Plow, B-1.

*Steel Swivel Plow, A-2.* A larger size is suitable for two to four cattle or horses.

*Trimmings.* — They are trimmed same as the Cast Iron Plows, except in the *A-2* size, the landside or cutting edge of the share being thrown past the centre of the beam as the plow is turned to the right or left, a movable cutter may be used to advantage, which, worked by a lever, is easily adjusted by the plowman.



## EAGLE SWIVEL PLOWS.

FOR HILLSIDE AND LEVEL LAND.

THIS series of plows is made in four sizes, which have all the principles of construction of our DEEP-TILLING EAGLE PLOWS.

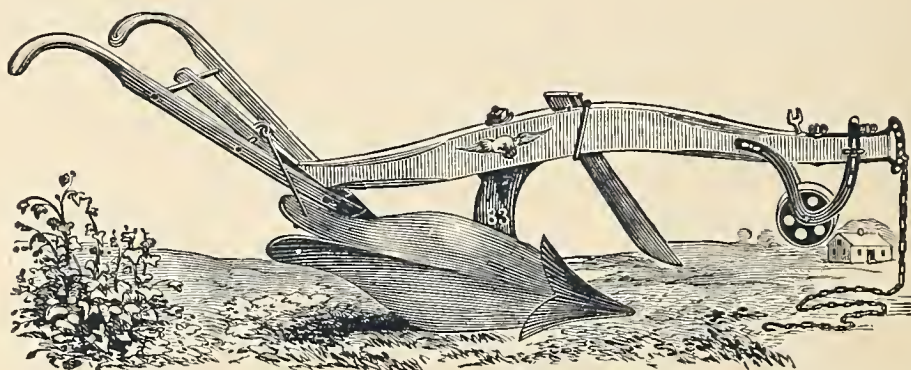


Fig. 287.—Eagle Swivel Plow, No. 83.

**Eagle Swivel Plow, No. 83**, represented by *Fig. 287*, a SWIVEL PLOW for level land, is adapted to turn sod-furrows five to seven inches deep by ten to twelve inches wide, requiring for draft two or three horses or cattle.

**Eagle Swivel Plow, No. 84**, is a size larger, turning sod-furrows six to nine inches deep, and can be worked to a greater depth with double teams.

**Eagle Swivel Plow, No. 85**, the largest size, will turn sod-furrows eight to ten inches deep by twelve to fourteen inches wide, requiring for draft four horses.

**Eagle Swivel Plow, No. 82**, for two cattle or horses, is similar to the preceding in general construction, but a quicker turned mould-board fits it for stubble or old ground, and for furrows six to eight inches deep by twelve to thirteen inches wide.

**Eagle Sod and Subsoil Swivel Plow, No. 85**, represented by *Fig. 288*, was invented by Knox; and its mould-boards are formed on the principles perfected by him. It is so constructed that two plows attached to one beam are readily changed from one side to the other, turning the furrow-slices either to the right or left as desired. The forward plow turns the sod to the depth of about three inches, depositing it at the bottom of the channel; while the rear plow, working deeper by five to seven inches, and in width ten to twelve inches, raises and pulverizes the under or subsoil, and deposits it upon the forward furrow-slice, thus combining the advantages of a SWIVEL PLOW with the sod and subsoil principle explained on page 18.

The rear plow is shifted to the right and left, same as in all SWIVEL PLOWS. To

shift the forward plow, the plowman simply raises the latch, which is within easy reach ; while the team, in turning, reverses the plow, which is self-latching.

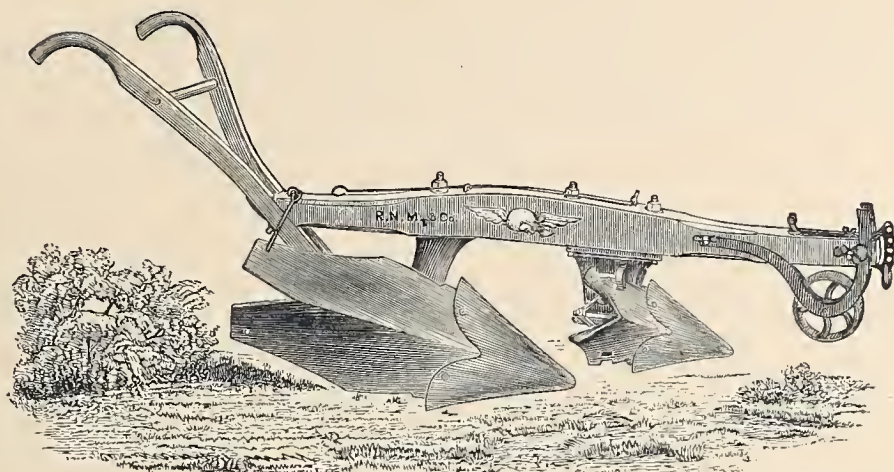


Fig. 288. — Eagle Sod and Subsoil Swivel Plow, No. 85.

*Trimmings.* — These SWIVEL PLOWS are customarily trimmed with wheel and cutter, although the draft-rod can be used.

## RIDGING OR DOUBLE MOULD-BOARD PLOWS.

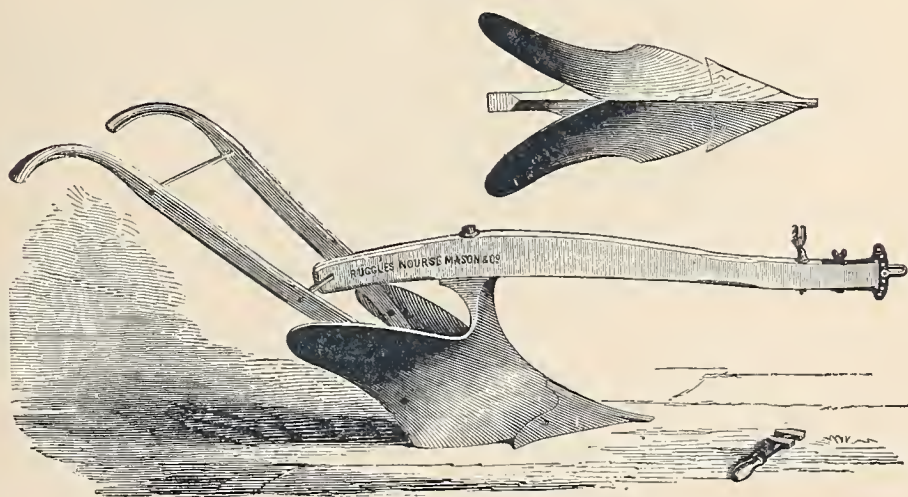


Fig. 290. — Double Mould-board Plow.

*Double Mould-board Plows* are shown by *Fig. 290*. They are used for opening drills to plant potatoes or corn ; for plowing out between narrow rows, throwing the dirt both ways to the plants ; thus doing the work of two plows ; they are also useful in digging potatoes, and a convenient implement for various kinds of work.

*Double Mould-board Plow, No. 1 1-4*, is light for one horse.



*Double Mould-board Plow, No. 1 1-2*, a size larger, is also for one horse.

*Double Mould-board Plow, No. 2*, a larger size, is for one or two horses.

*Double Mould-board Plow, No. 4*, is for two horses.

Nos. 2 and 4 are also used in furrowing for planting cane, and for light ditching.

*Trimming.* — These DOUBLE MOULD-BOARD PLOWS are rigged sometimes with, but usually without, the wheel.

## WROUGHT FLUKE DOUBLE MOULD-BOARD PLOWS

THESE plows, which are represented by *Fig. 291*, are designed for ridging in the cultivation of sugar-cane. They differ materially in the manner of construction and in the working-surface of the mould-board, for the purpose of adapting them to the

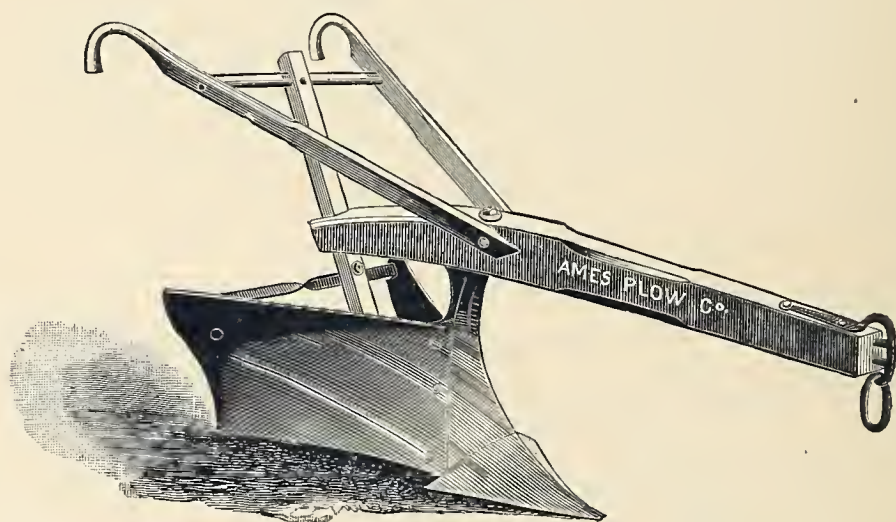


Fig. 291.—Double Mould-board Wrought Fluke Plow.

various soils of the different countries in which sugar-cane is raised. They are made with cast-iron standard and point. The form of the mould-boards is such that they are nearly in a straight line from the point to the heel: on their working-surface they are slightly concave, with very little turning-power, but acting more as a scraper to press out the soil each side from the centre into ridges, being better adapted to loam than to clay soil.

There are three sizes, the mould-boards of which spread out at the base of rear end as follows:—

No. 3.	17	inches wide.
" 4.	26 1-2	" "
" 5.	31 1-2	" "

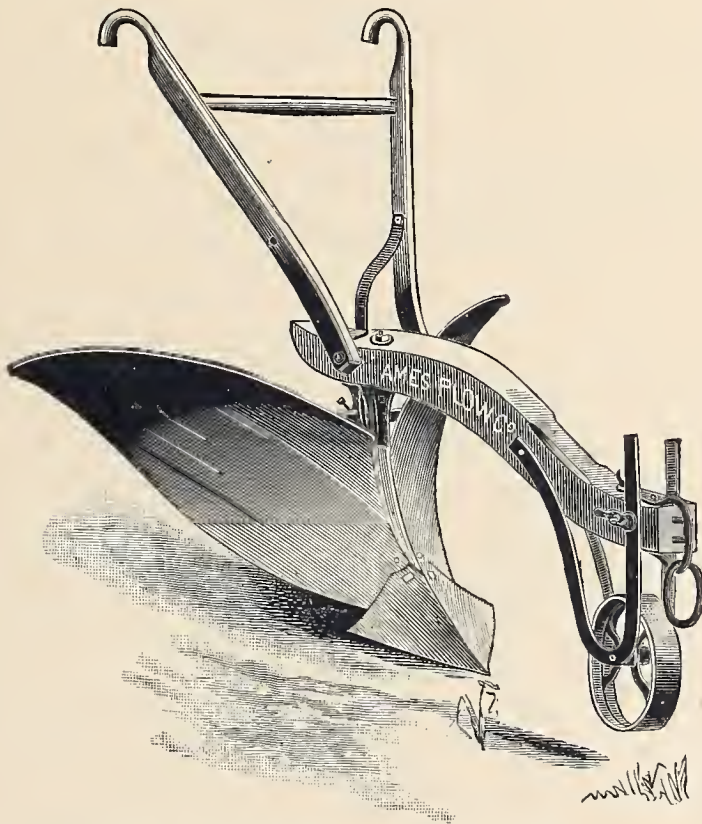
*Trimming.* — These plows are trimmed either with or without the wheel.



## EXPANDING WROUGHT FLUKE DOUBLE MOULD-BOARD PLOWS

FOR SUGAR-CANE.

THESE plows are represented by *Fig. 292*, and are also designed for ridging in the cultivation of sugar-cane. They differ materially in the manner of construction and in the working-surface of the mould-boards, for the purpose of adapting them to the



**Fig. 292. — Expanding Double Mould-board Wrought Fluke Plow.**

various soils of the various countries in which sugar-cane is raised. They are usually made with mould-boards of wrought-iron, with standard and point of cast-iron.

To the mould-board are attached two wrought arms in the form of a quadrant, lapping each other so as to expand the plow more or less, secured in the centre by a set screw, which is easily adjusted.

The shape of the mould-board is different from the Nos. 3, 4, and 5 wrought fluke, being concave, and made with greater turning-power and inverting-action; the ridges thrown by them being closely packed, and somewhat conical in shape.

There are also three sizes of these plows, as noted below. We also give the widths of the mould-boards at the base of rear end when contracted to smallest space, and when expanded to fullest extent. They can be arranged at any distance between these two extremes.

No. 17.	When shut, 12 inches; expanded, 17 to 18 inches.					
" 18.	"	"	15	"	"	21
" 19.	"	"	17	"	"	24

The No. 19 is often made with longer mould-boards, thus increasing the distances at the base of rear end.

The Nos. 17 and 18 are sometimes made with cast-iron mould-boards of convex form, similar to the Scotch Plows. They expand like the wrought mould plows, and pack the ridges nearly in same form.

*Trimmings.* — These plows are rigged either with or without the wheel.

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## SUBSOIL PLOWS.

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THE deeper disintegration of the soil has long been admitted as a desirable mode for general adoption; and in particular districts, where the surface-loam was shallow, and the subsoil too heavily charged with clay, it was found not beneficial to reverse the position of the soil, placing the clay on top, but that the disturbance of the clay without elevating it was advantageous.

The first SUBSOIL PLOW ever seen in America was imported in 1840 by our predecessors, Ruggles, Nourse, & Mason, from Scotland; and from this pattern the importers made a plow of equal capacity, but much lighter, of simpler construction, and better adapted to practical use.

The SUBSOIL PLOW follows directly after and in the furrows made by the surface-plow, and changes the position of the lower soil to any desirable depth by merely raising it a slight distance without turning it. It disintegrates all the way to the surface, undercutting both the landside and the furrow-slice without useless friction, lifting them very much as the mole does when travelling beneath the surface, and causing much greater pulverization than any surface-plowing would accomplish. That part which moves through the soil occupies little space, and resembles a thin wedge slightly varying in thickness in the different kinds.

Subsoiling prevents plants from suffering from drought in dry seasons, by enabling the roots to extend deeply into the soil, and gives lightness and warmth to the soil in wet seasons, by causing the excess of moisture to filter below the surface. It is specially valuable in lands where the top soil rests upon hard pan that is a few inches below the surface, also in stiff, clayey, or other tenacious soils, as by its use the hard

pan or stiff undersoil is opened and pulverized so as to promote the ascent of moisture from below, and enable the roots of vegetation to extend downwards.

It enables thin seeding to produce as large crops as thick seeding produced before. Those who run a surface-plow to the depth of six to nine inches, and a subsoil-plow capable of disintegrating to the depth of nine or ten inches beneath the bottom of the surface-furrow, can almost say that they have discovered another farm beneath that represented on their map.

**Trimmings.** — The SUBSOIL PLOW is oftentimes trimmed with draft-rod, and sometimes with wheel also.

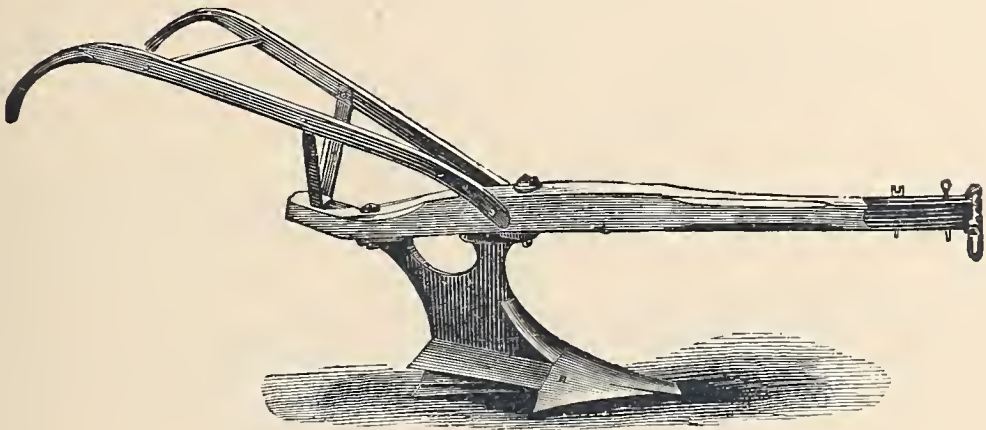


Fig. 294. — Cast Subsoil Plow.

*The Cast Subsoil Plow*, made after the Scotch model, is represented by *Fig. 294*, and we manufacture four sizes ; viz., —

- No. 0. For one horse, works 9 inches deep, or less.
- “ 1. “ two horses, “ 14 “ “ “
- “ 2. Heavy, for two horses, works 18 inches deep, or less.
- “ 3. For two or three horses, works 18 inches deep, or less.

The No. 3 is made with wing on either side or on both sides.

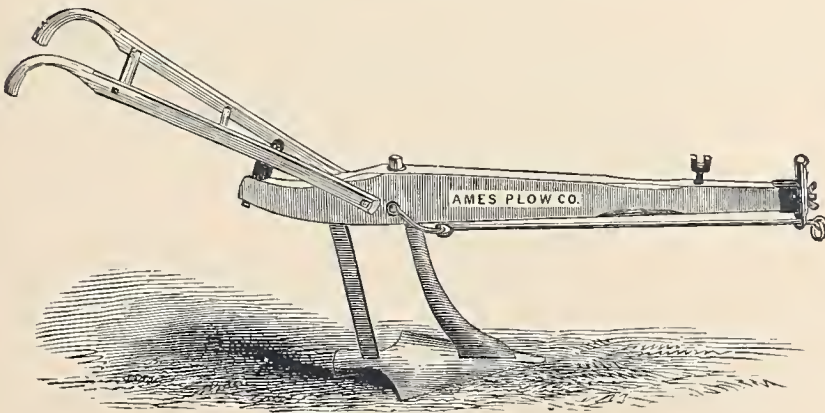


Fig. 295. — Mapes Lifting Subsoil Plow.

*Mapes Lifting Subsoil Plow*, represented by *Fig. 295*, is made of wrought-iron and steel. It is found to double a sod corn-crop by passing after the sod-plow to



loosen the unturned soil, and allow the roots to spread freely. The five sizes made are as follows : —

- No. oo. Light, for one horse, works from 5 to 9 inches deep, with a 4-inch cut.  
 “ o. For one horse, works from 6 to 10 inches deep, with a 5-inch cut.  
 “ A. “ two cattle or horses, works from 10 to 14 inches deep, with a 6-inch cut.  
 “ B. “ “ or three cattle or horses, works from 12 to 16 inches deep, with an 8-inch cut.  
 “ C. “ four cattle or horses, works from 14 to 18 inches deep, with a 9-inch cut.

*Mapes Reversible Subsoil Plow*, represented by *Fig. 296*, is made of cast-iron and in two sizes. The smaller size, No. A, works from twelve to fourteen inches

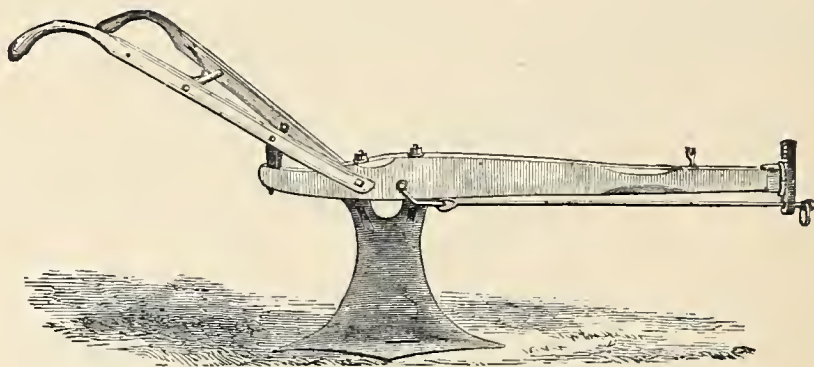


Fig. 296. — Reversible Subsoil Plow.

deep, and is for three cattle. The larger size, No. B, works from twelve to fifteen inches deep, and is for four cattle. The standard or share of these plows, being the same front and rear, can be reversed when worn.

## THE PARING PLOW.

*The Paring Plow*, represented by *Fig. 297*, is used for paring turf-lands preparatory to burning. The share is thin and flat, made of wrought-iron and steel.

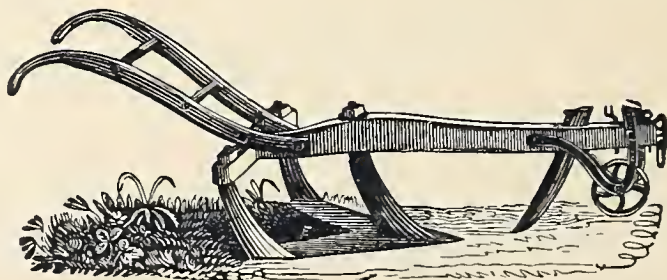


Fig. 297. — Paring Plow.

It has lock-coulters at the point and at the outward end of each wing of the share, cutting the turf as it moves along into two strips, each about one foot wide, and as

deep as required. After the turf is pared off in strips, men follow with sharp spades, and cut it into suitable lengths, say of two or three feet. These pieces are then thrown into heaps, and after drying are burned, and the ashes spread broadcast on the land. Paring and burning is a very ameliorating process for stiff clay soils: it changes their organic texture, and renders them friable and suitable for cultivation. It is always furnished with wheel, and, if requested, with the drag-cutter, as shown in accompanying illustration.

## PROUTY & MEARS' CENTRE-DRAFT PLOWS.

HAVING purchased all the original and only genuine patterns now in use of these celebrated plows, we are prepared to furnish them of all the various kinds and sizes, and below enumerate a few of the most popular.

These plows are of easy draft, turning the furrow most perfectly, and wherever they have become known are in general demand.

**No. 19** is a small, one horse or mule plow.

**No. 20** is a medium, one-horse plow.

**No. 21** is a large, one-horse plow.

**No. 22** is a medium sod-plow for two cattle or horses.

**No. 23** is a heavy sod-plow for two cattle or horses.

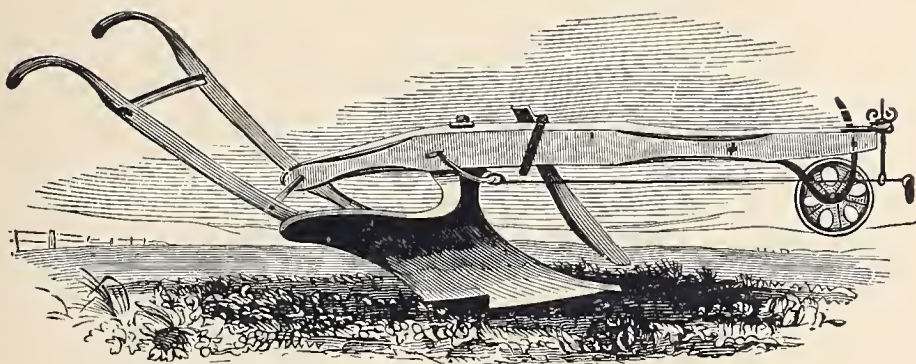


Fig. 298.—Prouty & Mears' Plow, No. 25.

**No. 25**, represented by *Fig. 298*, is a two horse or cattle sod and stubble plow, and is very popular for general use.

**No. 26** is a sod-plow for four or more cattle, and is specially strong and heavy for this purpose.

**Trimming.** — These plows for the colonial markets, where they are largely sold, are trimmed with rod, wheel, and cutter; but in other markets they are used with trimmings, as customary in that market.



*Improved Deep-Tilling Centre-Draft Plows, No. 154*, for three cattle, and *No. 155*, for four cattle, represented by *Fig. 299*, are deservedly popular among farmers who have used them. They are more especially adapted for sod-work, but

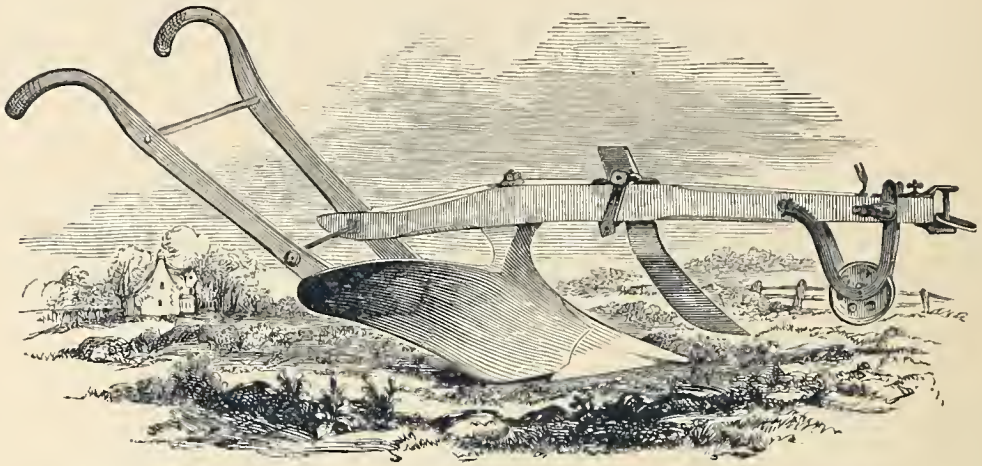


Fig. 299. — Prouty & Mears' Plow, Nos. 154 and 155.

can also be used for ordinary two-horse plowing, and have taken many premiums at plowing-matches. They are usually trimmed with wheel and cutter, and the draft-rod may be used.

*Improved Midland Ridging Plow*, shown by *Fig. 301*, is a double mould-board plow of the largest size, for four horses, and is calculated for gathering and distributing ridges in the cultivation of root-crops, and harvesting potatoes, but is especially designed for the forming of back furrow-ridges on grass or sward land, where manure has been spread upon the surface. This is done by throwing two furrow-slices nearly together, and enclosing the manure and vegetable matter in such a manner as to form a seed-bed most desirable for corn and other crops, — a practice successfully introduced in some sections.

This plow is furnished with a wheel at the fore-end of the beam, and a larger wheel under the after-end of the beam serves as a landside, on which it is supported while in action. These plows are always furnished with cutter; and two small cutters, one near the tip of each wing of the share, projecting up about three inches, assist in lightening the draft, and separating the furrow-slices. The depth of furrows is five to ten inches, and the width may be varied from eighteen to twenty-four inches by adjusting these small cutters.

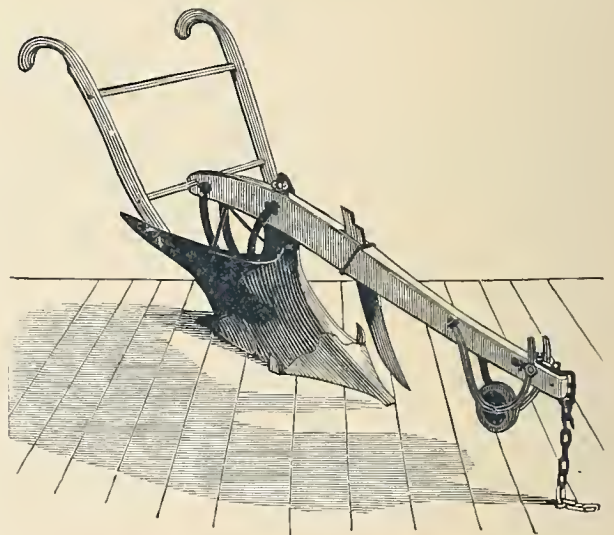


Fig. 301. — Midland Ridging Plow, No. 6.



## MARTIN'S EAGLE PLOWS.

(H. O. BEAN.)

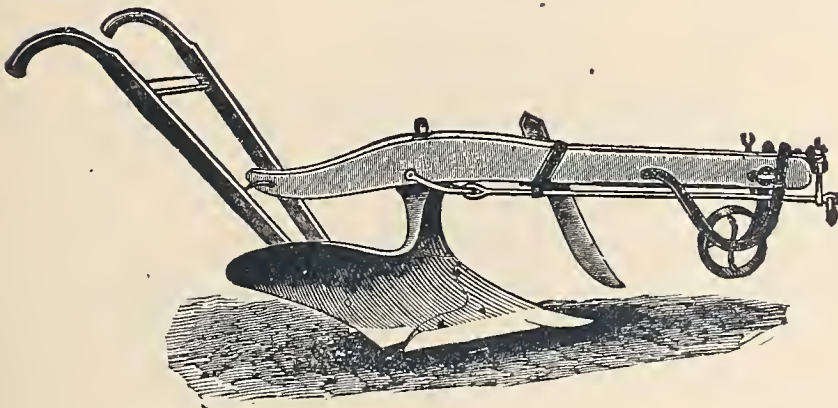


Fig. 302.—Martin's Eagle Plow.

IN many markets, these plows, shown by *Fig. 302*, of which the leading sizes are described below, are in large demand, working satisfactorily in any kind of soil.

- No. A. Light, one-horse plow.
- “ B. Medium “ “
- “ C. Large, one-horse plow, sometimes used for two horses.
- “ D. Two horse or cattle plow.
- “ 3. Large, two horse or cattle plow.
- “ 50. Heavy sod-plow for three or four horses or cattle.

*Trimmings.* — For many colonial markets, the customary trimmings are the rod, wheel, and eutter ; while for other markets only a part of these attachments are used.

## CONTRACTORS' AND ROAD PLOWS.

*Heavy Swivel Road Plow, A-4*, is represented by *Fig. 286*. It is made very strong and is especially designed for the roughest road-work, being of a size and capacity requiring a draft of four to eight cattle. It is extensively used and will

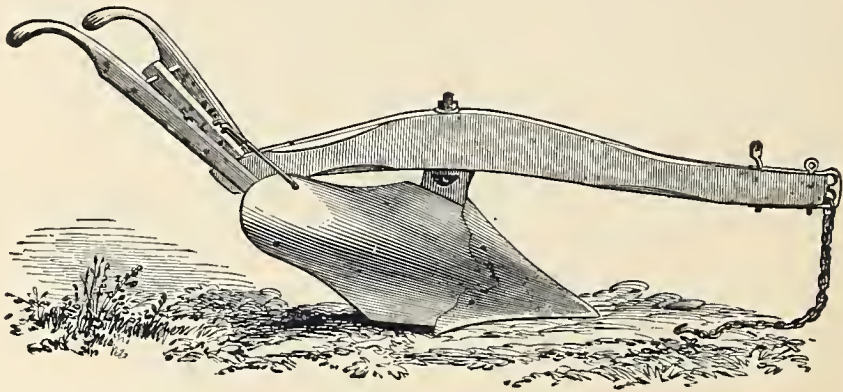


Fig. 286.—Heavy Swivel Road Plow, A-4.

break the ground and give the general shape to a road in the newest and most difficult soil, plowing among roots, stumps, and stones without breaking. For the annual repair of roads, it is most valuable; for it will speedily open the ditches on either side of the road at will, as the mould-board is reversible, to furnish earth with which to form the road-track.

*Heavy Road or Contractors' Plow, No. 8, Lock Coulter*, represented by *Fig. 300*, made very strong in all its parts, and further strengthened by extra braces,

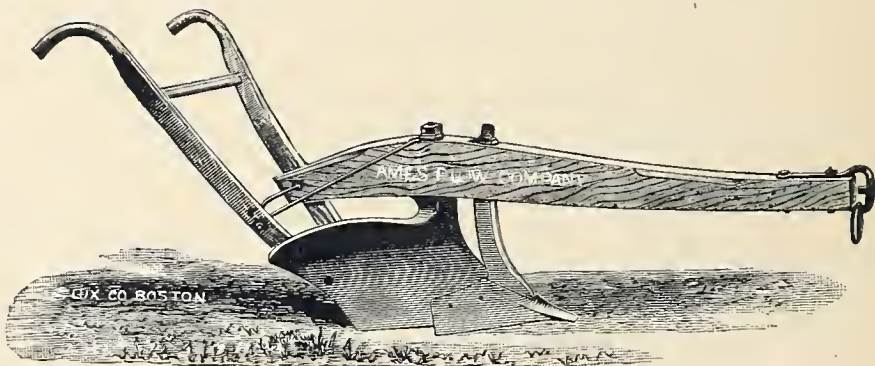


Fig. 300.—Heavy Road Plow, No. 8.

is designed especially for use in the construction of highways, railroads, and for other heavy work, and is extensively used, being capable of standing the tremendous strain

of the roughest work of this class. It required the draft of four to eight horses or cattle.

*The Truss Beam Contractors' Plow*, shown at *Fig. B 303*, is the latest production in this line, for use by four to eight horses on all kinds of works, even to cemented gravel, street pavements, and other hard materials. The illustration shows

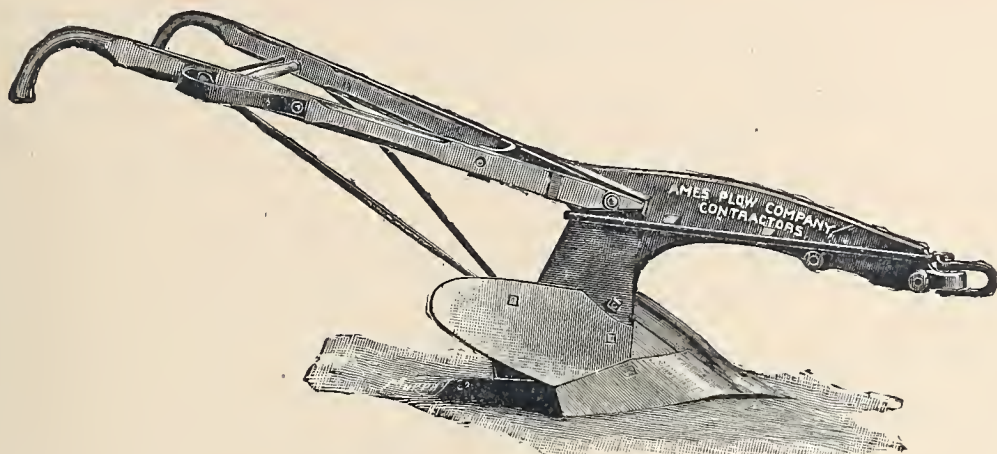


Fig. B 303.—Truss Beam Contractors' Plow.

the plow for grading. We furnish it specially arranged for plowing into sewers and ditches when so desired. It is the strongest plow ever made, and in addition to the Truss Beam it has a Wrought Yoke for the handles and a Steel Point which can be repaired when worn.

*The Truss Beam Hard Pan Plow, or Power Pick*, shown at *Fig. B 304*, is one which we have recently perfected for the special use of contractors in tearing up macadam and other forms of road-bed. It is claimed that for this purpose there

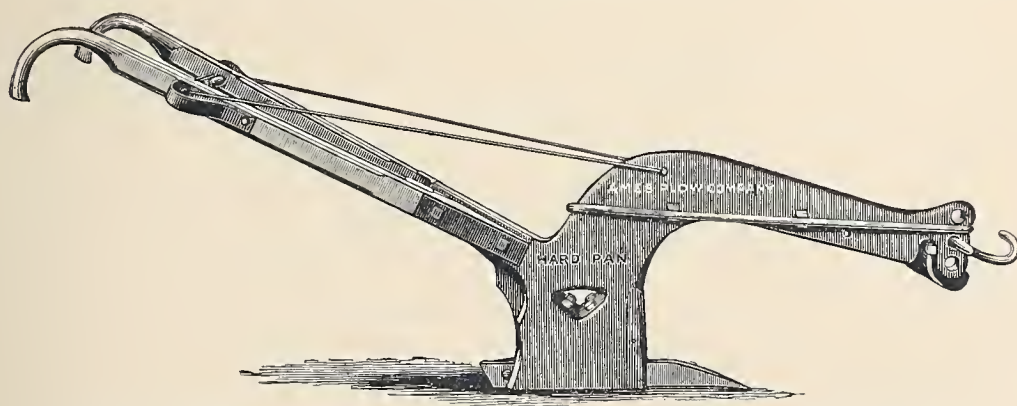


Fig. B 304.—Truss Beam Hard Pan Plow or Power Pick.

is nothing now in the market which will do the work so thoroughly and with so great a saving of labor as this plow. It is very strongly constructed and equal to the greatest strain. The point of this plow is a straight bar of cast steel drawn down at the point, and can be readily repaired or replaced by any blacksmith.



## CUTS AND EXPLANATIONS

### OF THE VARIOUS

# PLOW PARTS AND TRIMMINGS.

THE cast-iron parts of our plows are all made of an admixture of several kinds of that metal, the result of many experiments, giving toughness, hardness, and durability, by which great strength with lightness is secured. The edges of the points and soles of the landsides and mould-boards are hardened in casting by a process of chilling, which insures at least three times the ordinary wear.

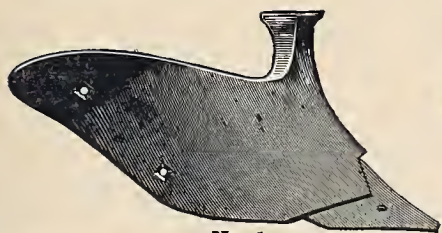
The steel plows are made of the best material, and with perfectly smooth and polished surfaces.

The beams and handles are of oak, dressed by merrering guides and patterns, so that all of a given kind are alike, and the plows uniform in their operation and parts.

The duplicate parts of each pattern of these plows, to supply the place of those worn out, can always be promptly furnished to order; and the larger pieces have specific marks inscribed on them which entirely distinguish them from those of other plows.

For the convenience of our customers, we give illustrations at *Fig. 305*, and append short descriptions of the various parts and trimmings.

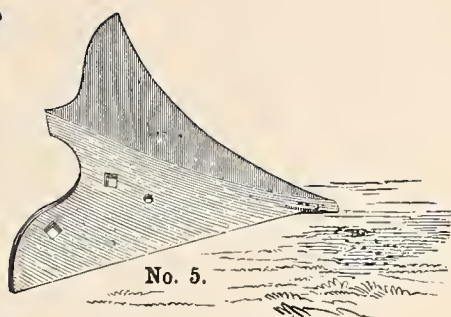
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|--|--|
| <p>No. 1. Mould-board for cast-iron plow.<br/>Mould-board for steel plow is the face presented to the soil, and bolts to the standard the upright piece which connects it with the beam.</p> <p>" 2. Standard bolt.</p> <p>" 3. Landside for cast-iron plow. Landside for steel plow is quite similar.</p> <p>" 4. Point for cast-iron plow. Point for steel plow is quite similar.</p> <p>" 5. Fin-point, sometimes used in stubble-plowing.</p> <p>" 6. Point and landside bolts.</p> <p>" 7. Beam.</p> <p>" 8. Mould-board handle.</p> <p>" 9. Landside handle.</p> <p>" 10. Iron handle-rod.</p> <p>" 11. Iron handle-brace.</p> <p>" 12. Handle-bolt.</p> | <p>No. 13. Wheel complete (under beam).</p> <p>" 14. Wheel-frame ears, long front bolt, short rear bolt.</p> <p>" 15. Side-wheel complete.</p> <p>" 16. Clevis complete.</p> <p>" 17. Quadrant clevis, showing draft-rod.</p> <p>" 18. Cutter complete, side of beam (side view).</p> <p>" 19. Cutter complete, for plowing flat furrows (front view).</p> <p>" 20. Cutter complete, for plowing lap-furrows (front view).</p> <p>" 21. Cutter complete, through beam.</p> <p>" 22. Lock-coulter.</p> <p>" 23. Circular cutter complete. Single standard.</p> <p>" 24. Circular cutter complete. Fork standard.</p> <p>" 25. Skim-coulter.</p> |
|--|--|



No. 1.



No. 3.



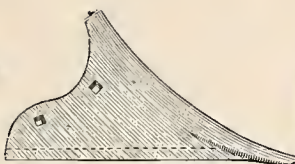
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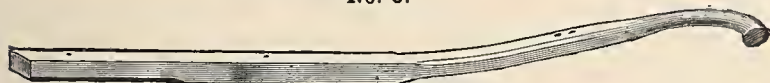
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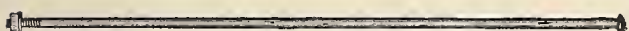
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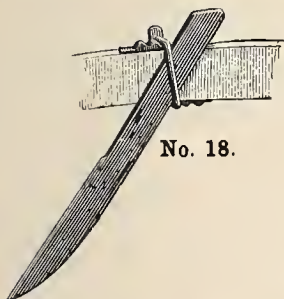
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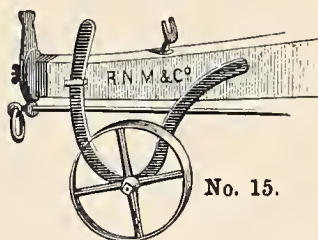
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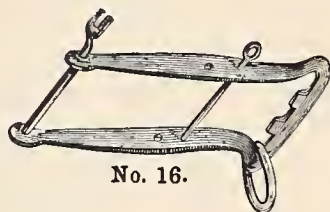
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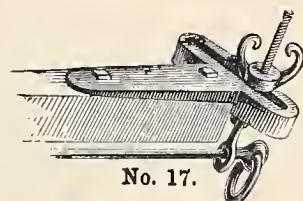
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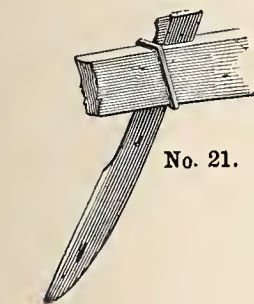
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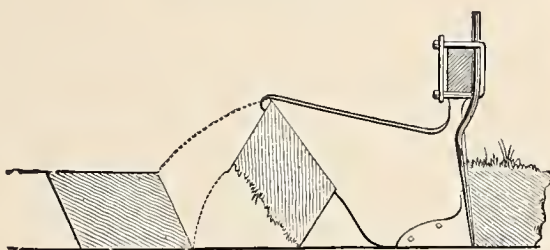
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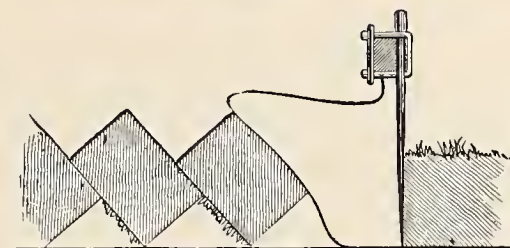
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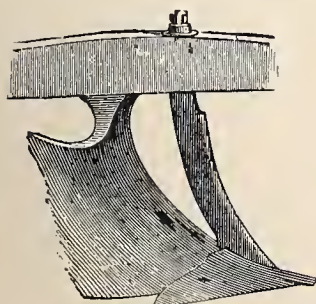
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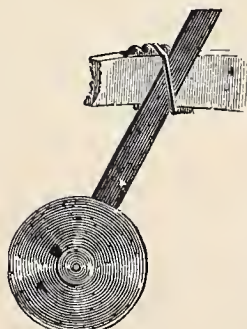
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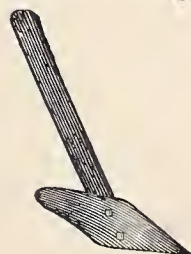
No. 22.



No. 23.



No. 24.



No. 25.



**The Wheel.** — Several advantages are realized by the use of the adjustable gauge-wheel attached to the plow, particularly in turning sod. It gives a uniform and desirable depth to the furrow-slice, and a steady and regular draft to the plow, promoting the ease of both plowman and team. The wheel is placed under the beam, as shown in *Fig. 305*, at No. 13, or at side of beam, as shown at No. 14, the former mode being more customary.

**The Cutter.** — Our cutters are always made of steel, or steel-edged, so they may be easily kept sharp. This important appendage to the plow in turning sod is shown at Nos. 18, 19, 20, and 21. It separates the furrow-slice from the mainland by an easy, smooth cut, and makes a great saving of draft to the team. Without a cutter, the furrow-slice would be torn off the land by the breast of the plow, its edges would be bristling and ragged, its width irregular, and its inversion by the mould-board would not be at all times so certain.

When a particular style of plowing is desired, such, for instance, as lapped or flat, the set of the cutter must be for that kind of plowing, or the desired work will not be accomplished. The forward inclination of the cutter may be greater or less at pleasure; though in some conditions of the soil and sod, it is best quite raking, for the edge will thereby better free itself of the loose roots and stems that may double over and remain upon it.

**The Circular Cutter.** — This fixture, shown at No. 23 with single standard, and at No. 24 with fork standard, works on the same principle as the cutters already described, and is used for breaking prairie and grassy sod lands.

**The Lock Coulter.** — This is shown at No. 22. It passes through the beam, and is made fast on top with a key, and locks through the share and mould-board where they join together. The adjustment is a very strong one, both for the coulter and the plow, and adapts the implement for work among stones, stumps, and roots, as the coulter cannot be turned out of place or broken by such obstacles.

**The Skim Coulter.** — The Skim, shown at No. 25, is used mostly for lapped-sod plowing, and shaves off the grass edge of the furrow-slice; and the turf thus taken off is carried over on the turning-slice till it drops into the furrow-channel, and is buried. It is usually placed a few inches forward of the cutter, and the standard, or shank, attached to the beam same as side cutters are attached.

**The Clevis.** — This is represented at No. 16, and is of wrought-iron.

**The Quadrant Clevis and Draft-Rod.** — These attachments, shown at No. 17, afford a wide range to the landing of the plow, and are used on plows where extra deep heavy work is to be done. By loosening the nuts of the screw-bolt of the clevis, through which the draft-rod passes, the line of draft may be raised or lowered, turned on or off the land, and more or less depth or width of furrow may be given the plow to any desirable extent.



## HARROWS.

A WELL-CONSTRUCTED harrow is an important and effective implement in fitting the soil for the reception of seed by breaking up clods, disengaging roots, and pulverizing the earth, and for seeding.

All our harrows are made in the most substantial manner, the woods being securely

fastened together, and firmly riveted at each tooth. The teeth are of wrought-iron, steel-pointed (not all iron, as made by some), thus obtaining the most serviceable tooth possible. We can also furnish solid steel teeth when desired.

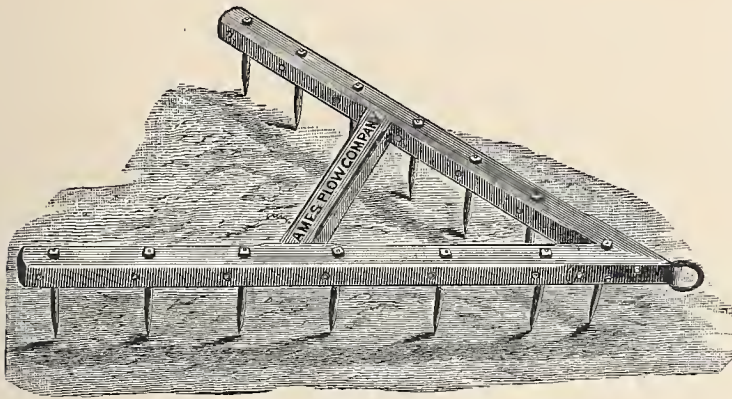


Fig. 325. — A Harrow.

It is made in five sizes, adapted to light or heavy work, and is in very general use.

*The Geddes Harrow*, represented by Fig. 326, of which we make seven sizes, is also very generally used. It is made of two pieces of framework joined by hinges

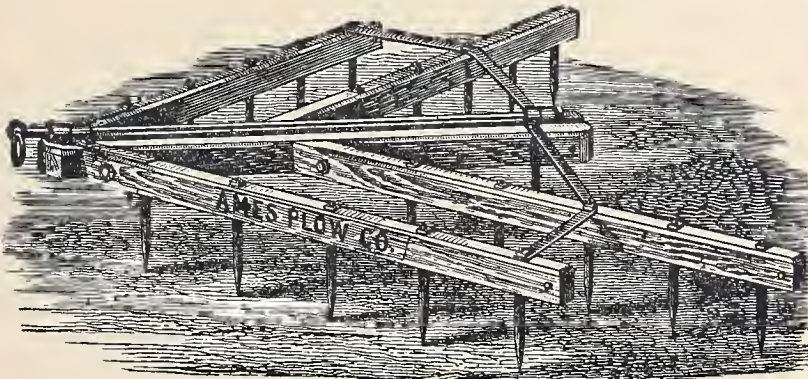


Fig. 326. — Geddes Harrow.

in the centre, so that it adapts itself to an uneven surface; and either side may be conveniently elevated to free it from stones or sods, while the harrow is moving, without disturbing the operation of the other half; and one part may be folded upon the other, in passing stones, or between stumps and trees.

The arrangement of the teeth in the framework is such that each one operates distinctly from the others; and the number of impressions made on the soil will be equal to the number of teeth, and at equal distances.

We make these harrows with straight teeth, as illustrated, or with eurved teeth.

*The Improved Hinge Harrow*, represented by *Fig. 327*, is made either with twenty-four or thirty teeth, and may be folded or separated into two parts; and the

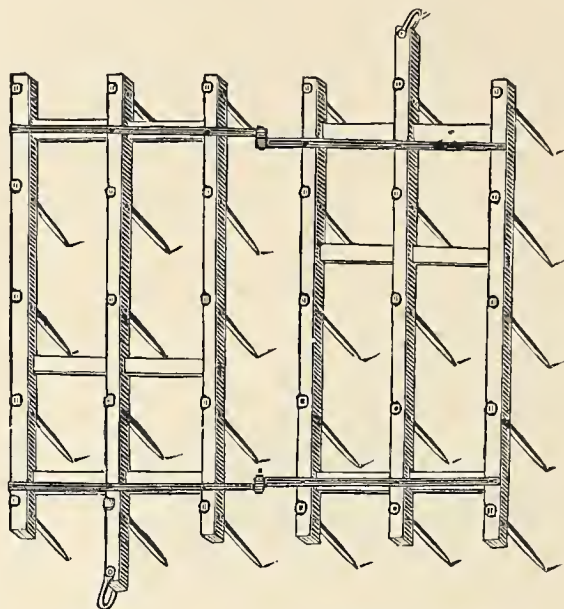


Fig. 327. — Improved Hinge Harrow.

easy and independent play of the parts up and down upon the hinges enables the implement to adapt itself to the surface of the ground in a similar manner to the GEDDES HARROW. The teeth, when dull, may be sharpened by hitching the team to the opposite end.

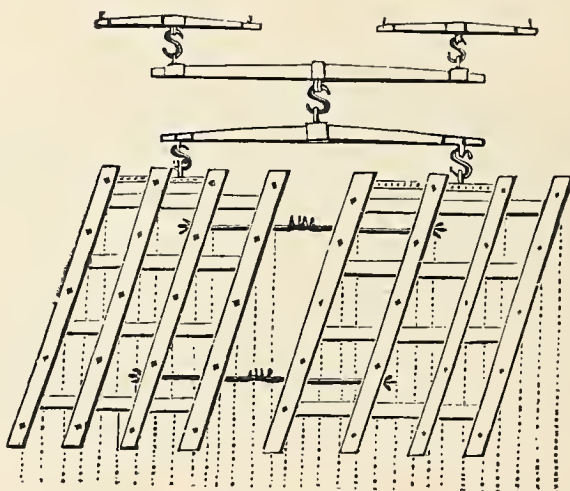


Fig. 328. — Scotch Harrow.

*The Scotch Harrow*, represented by *Fig. 328*, is a modification of the HINGE HARROW. It is made with thirty-two or forty teeth, inserted in such manner that



each tooth forms a separate track, as shown by the dotted lines. The hinges enable it to fit a rolling or uneven surface.

For the fine pulverization of a smooth surface, this harrow is very desirable, and is used particularly for seeding or for light lands.

*The Expanding and Reversible Harrow*, represented by *Fig. 329*, is so constructed as to admit of being widened or narrowed to do coarse or fine work. The

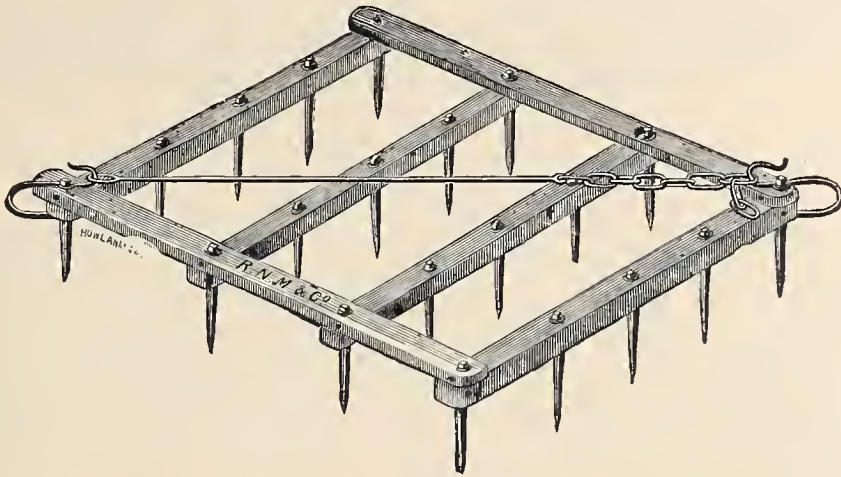


Fig. 329.—Expanding and Reversible Harrow.

two bars on top of the framework are connected with the four under bars by the outside teeth, the upper parts of which are rounded and shouldered, with nuts and screws on the top, and on which the entire frame swivels or turns in expanding and contracting, which is done simply by shortening or lengthening the chain on top. Thus the harrow is made any desirable width, and to work the soil to any degree of fineness.

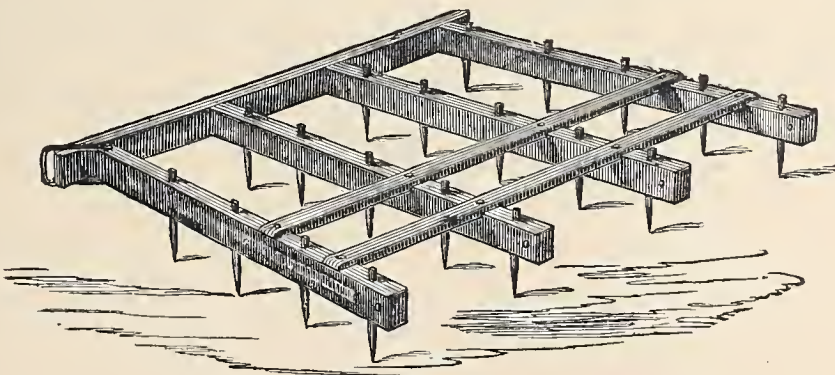


Fig. 330.—Square Harrow.

*The Square Harrow*, represented by *Fig. 330*, is in common use in some sections. They are made of various sizes.

*The Shares Improved Harrow*, represented by *Fig. B 331*, is the most perfect of all implements for pulverizing the freshly inverted surface of sward-land to a depth two or three times as great as the common harrow can effect. The teeth, being sharp, flat blades, cut with great efficiency; and, as they slope like a sled-runner, they



pass over the sod; and instead of tearing up like the common harrow, or gang-plow, they tend to keep it down and in its place, while the upper surface of the sod is sliced up, and torn into a fine mellow soil.

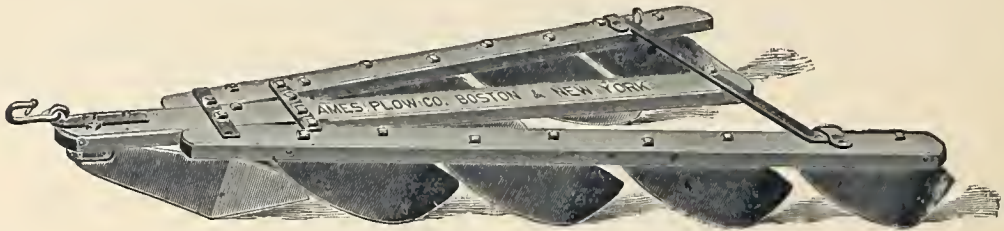


Fig. B 331.—Shares Improved Harrow with Steel Teeth.

They are made either with Iron Teeth or Steel Teeth, and each kind in four sizes suitable for one to four horses. The Double Front Tooth used on both the Iron and Steel Harrows disposes of the ridge left by the side teeth which curve in opposite directions. The Steel Tooth Harrow, which is the one illustrated, is now the most favorably known, because the broad, thin blades are always sharp, and being steel they present a smooth surface and are very light draft.

*The Star Reversible Smoothing Harrow* is represented by *Fig. B 310*, and in presenting it we can safely say that it is the best Smoothing Harrow in the market. The teeth are reversible; that is, by drawing from one end of the harrow they are perpendicular, and by changing the draft to the other end they are slanting, as

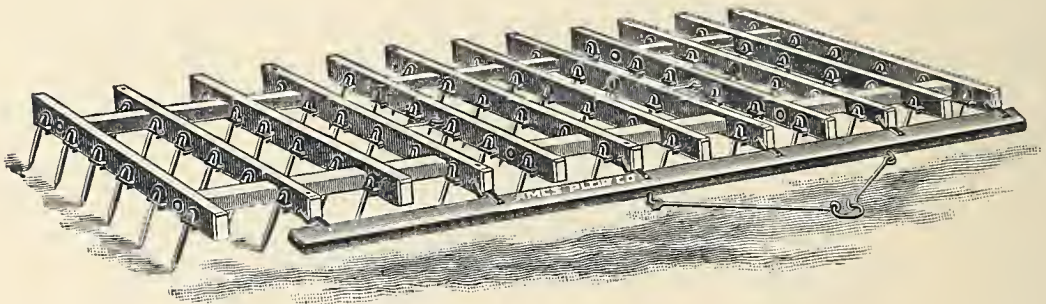


Fig. B 310.—Star Reversible Smoothing Harrow.

shown in illustration. This is accomplished by setting the teeth in the side of the frame and bending them at right angles to the part entering frame, with a malleable holder for each tooth slotted so teeth are convertible from a perpendicular to a slanting position, as explained above. With the teeth in perpendicular position it answers as an ordinary harrow. With slanting teeth it is a smoothing harrow, and as such we wish to specially consider it.

For cultivating growing corn, potatoes, and small grain the advantage to be gained by the use of this harrow can not be realized until tried. It can be used with safety on corn until it is eight inches high, and combined horse and hand cultivating will not equal the results attained. The harrow is made in sections, each section

containing twenty-four teeth. Ordinarily three sections are used together, as shown in the illustration, spreading over ten feet; but we also sell them of two and four sections.

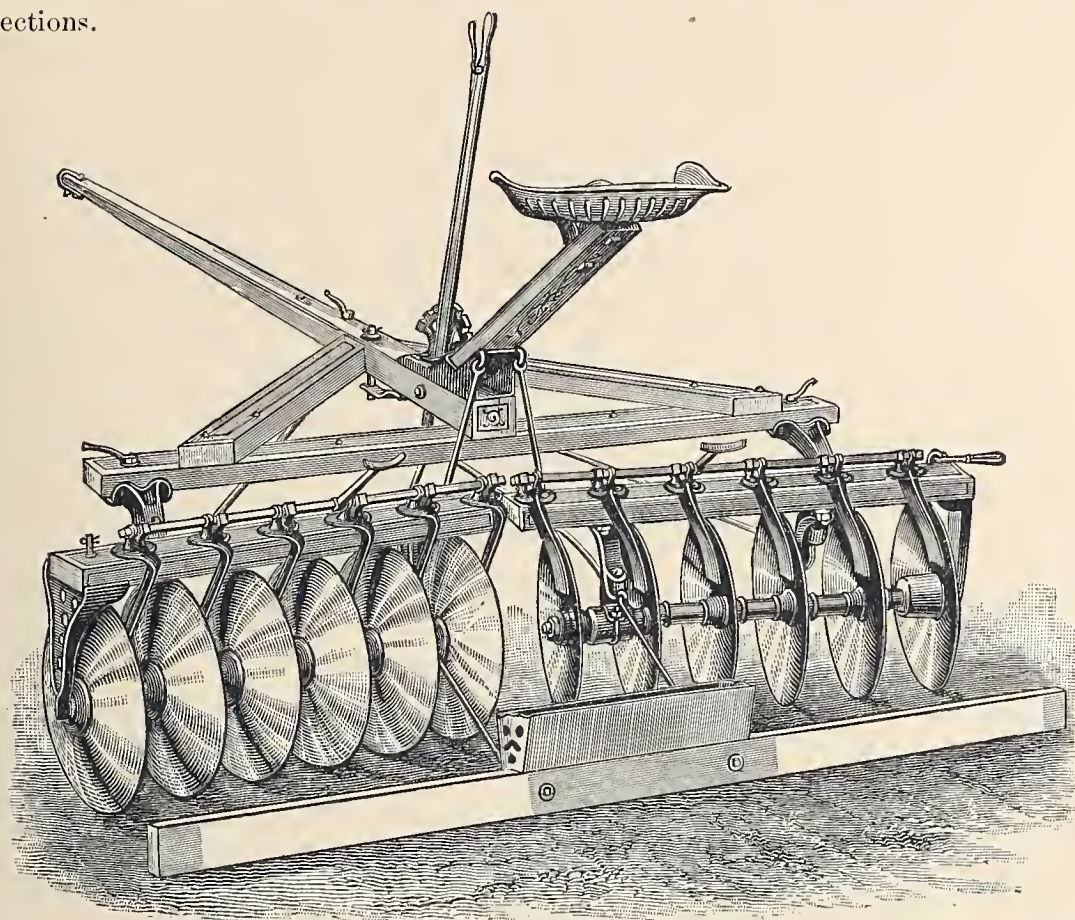


Fig. B 311.—Warrior Harrow, adjusted to throw the soil towards the centre.

*The Warrior Harrow, Figs. B 311 and B 312*, combines all the good points of Disk Harrows in general, and in addition it has many others which they do not possess. It is a perfectly flexible harrow, working equally as level without a stiffener as with, in all conditions of the surface. It is furnished with a lever by which the angle of the gangs can be changed without dropping the lines or leaving the seat. The disk gangs are connected to the main frame with a ball-and-socket joint in such a manner that each gang is free to conform to the uneven surface of the ground.

At work, the disks lifting and turning the soil act directly endwise on the gang-shaft. This excessive thrust must be overcome by resistance of the bearings, which in the Warrior is done by the end of the shaft running in a socket or bearing, with one end capped, thus bringing the friction where there is little motion and consequently little wear. The bearings are at each end of the gang and well protected from dirt, and there is no twisting strain, but the gang is carried along easily and with but little friction when compared with those harrows which have their bearings all grouped near the centre, leaving two-thirds of each gang unsupported and acting as a lever, twisting and bending in its bearings. The bearings of the Warrior move with the gangs when the angle is changed, instead of the gang moving in the bearings.



For the above reason we assert and are prepared to establish the fact that the Warrior does and always will draw lighter, doing more than any competing harrow.

As we know from experience that no jointed harrow can do as effective work on heavy soil as a stiff one, the Warrior is provided with a stiffener. The stiffener can be used or not, at the pleasure of the operator. Harrows that have been made heretofore have been faulty in that when the driver was not on the seat, the ends of the gangs would raise out of the ground, causing the centre to do the most work, which made it absolutely necessary to use a stiffener. The Warrior will work as a FLEXIBLE harrow without the driver or a weight.

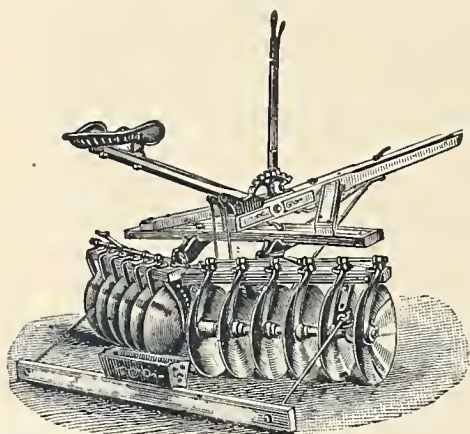
The scrapers of each gang of disks are connected together and all are worked simultaneously by a lever within easy reach of the driver's foot; and they can be brought into close contact with each disk to clean the surface, and instantly released, thus averting friction.

We furnish with each harrow a simple device which can be used as a leveller if desired, or detached by unhooking it. It has often been urged in relation to disk harrows of all makes that they leave the ground ridged, and it has been the practice of farmers to go over the ground with a smoothing harrow or brush to level it, but this leveller entirely obviates the trouble.

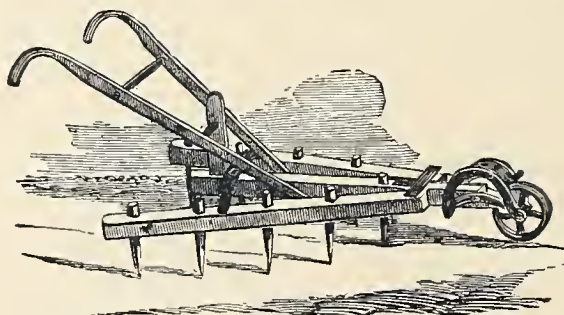
In some sections of the country, particularly where corn is raised, there is a demand for a reversible harrow, and this has been provided for in the Warrior, as can be seen in illustrations, and with very little trouble the gangs can be reversed.

The whiffletrees can be attached to either the top or the under side of the pole in such a manner as to do away with any bearing down on the necks of the horses.

*The Cultivator Harrow*, represented by **Fig. 332**, is made with handles; and the frame is so arranged that the width can be easily varied. It is furnished with a wheel,



**Fig. B 312.** — Warrior Harrow adjusted to throw the soil from the centre.



**Fig. 332.** — Cultivator Harrow.

by which the depth of work can be regulated, and is used in cultivating between rows of potatoes or cotton, or for light harrowing. See also Steel Frame Harrow Cultivators, page 72, and French's Cultivators, page 71, for improved variation of this implement.



## SEED-SOWERS AND CORN-PLANTERS.

THE importance of proper implements for sowing seed and planting should not be undervalued. When we consider the great labor of sowing seed in drills by hand, together with the unsatisfactory result of irregularity in line and in depth, the seed-sower is indeed a time and labor saving machine.

Its economy is not dependent upon these alone; for as every seed will be planted at the proper depth, and in the proper place, less seed is required than for hand-sowing, while the labor and expense of their after-culture is materially lessened.

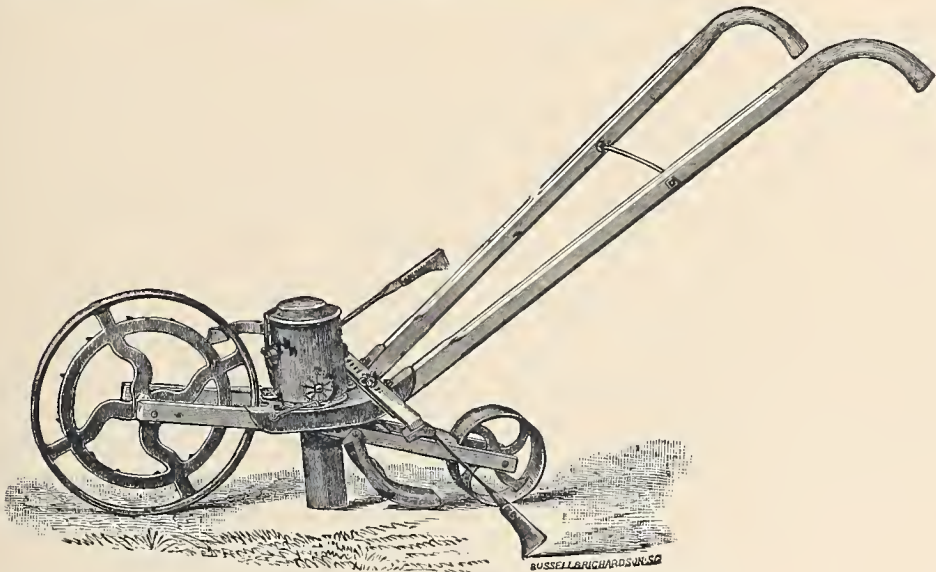


Fig. B 313. — Matthews Garden Drill.

*The Matthews Seed Drill*, illustrated in various forms at *Figs. B 313, B 314, B 315, B 316* and *B 317*, is designed to be used in field or garden. When in operation, it opens the furrow, drops the seed accurately at the desired depth, covers it and lightly rolls the earth down over it, and at the same time marks the next row, all of which is done with mechanical precision, by simply propelling the drill forward. In this way it sows with an evenness and rapidity impossible for the most skilful hand to do, all the different varieties of beet, carrot, onion, turnip, parsnip, sage, spinach, sorghum, peas, beans, broom corn, fodder corn, etc.

The agitator stirs the seed in the hopper thoroughly by a positive motion, which insures continuous and uniform delivery, and the bottom of the hopper is made sufficiently dishing to sow the smallest quantity of seed. When desired, the movement of the agitator can be checked, and the drill may then be propelled forward or backward without dropping seed. There is also an ingenious device by which the seed

can be cut off while turning at the ends of rows, thus saving quite a percentage of seed. The deposit of the seed may be gauged to any required depth, thus avoiding the risk

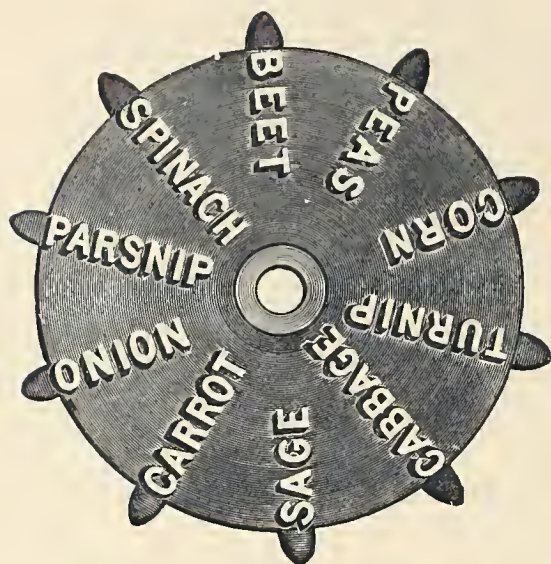


Fig. B 318.—Patent Indicator.

of planting at irregular depths, or so deep in places as to destroy the seed. The improved markers are made adjustable for the purpose of marking the rows at any desired distance apart, and they mark them distinctly whether the ground is even or uneven.

It is also provided with an Indicator having the names of different seeds thereon, of which we present full-size illustration at *Fig. B 318*. To adjust the drill for planting different kinds of seed, it is only necessary to turn the indicator around until the name of the seed to be planted comes to the indicator-pin at the top. This ingenious invention is a great improvement

upon any other method in use, and is infinitely more convenient and reliable.

*The Matthews Garden Drill*, shown at *Fig. B 313*, is the standard drill of America. It is used and recommended by the leading seedsmen and they say that none better can be procured. Medals and testimonials confirming its superiority over all other drills have been repeatedly bestowed upon it from all quarters, and as it has been improved from time to time, it is now everywhere acknowledged to be the most perfect drill made. It has been many years in use, and its still increasing sale is the best evidence of its merits.

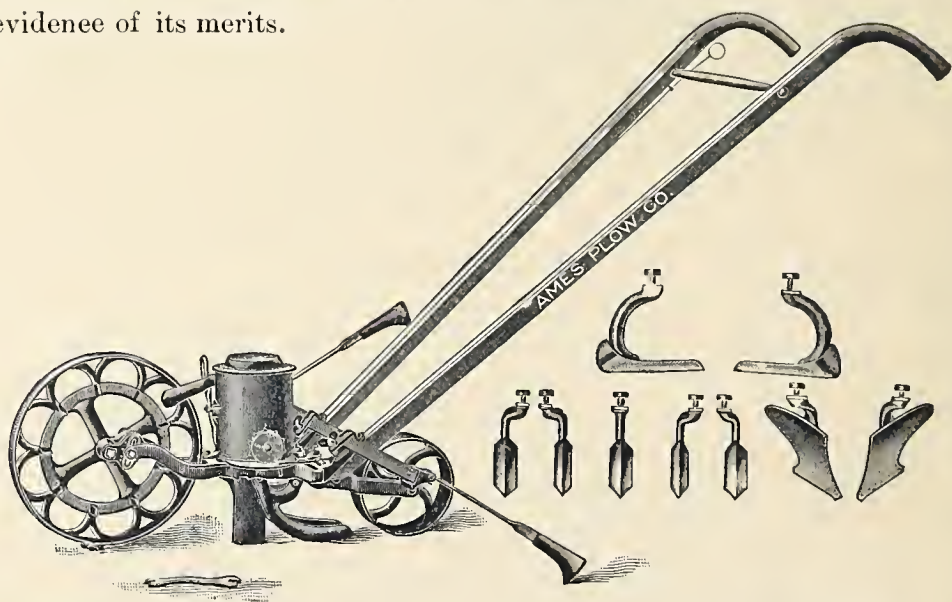


Fig. B 314.—Matthews Garden Drill, New Universal Model, single wheel, with Hoe, Cultivator and Plow Attachments.

*Matthews Garden Drill, New Universal Model*, single wheel, with hoe, cultivator and plow attachments, is illustrated at *Fig. B 314*. This desirable combination



of the garden drill already described with the New Universal Cultivating Attachments, is one which cannot fail of recommending itself to all, and as we have already had one successful season with it, we are prepared to state, without fear of criticism, that this will be the most popular combined seeding and cultivating implement known before the close of another season. It affords the best sower that has ever been put upon the market with the full size seed box used in the drill without attachments. The Cultivating Attachments are one pair Hoes, five Cultivator Teeth and one pair Plows, all of which are made and perfected with a view to giving the best possible satisfaction. The five Cultivator Teeth, set at equal distances apart, are capable of thoroughly stirring the soil to any width not exceeding eighteen inches at one passing. The Hoes are long and raking and curved at the points, and can be set to any width desired. The Plows can be set wide apart for covering or they can be set close together for furrowing, and they also come handy for many other purposes. The seeding and covering apparatus can be readily removed, when the implement presents much the appearance of the New Universal Single Wheel Hoe, Cultivator and Plow, illustrated on page 68. It is not necessary to remove the seed-box, as the teeth can be inserted in the frame with this attached.

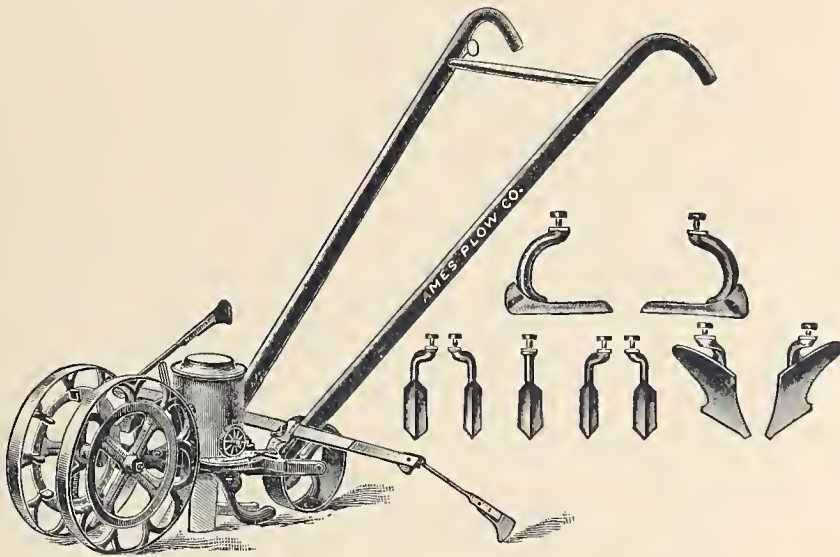
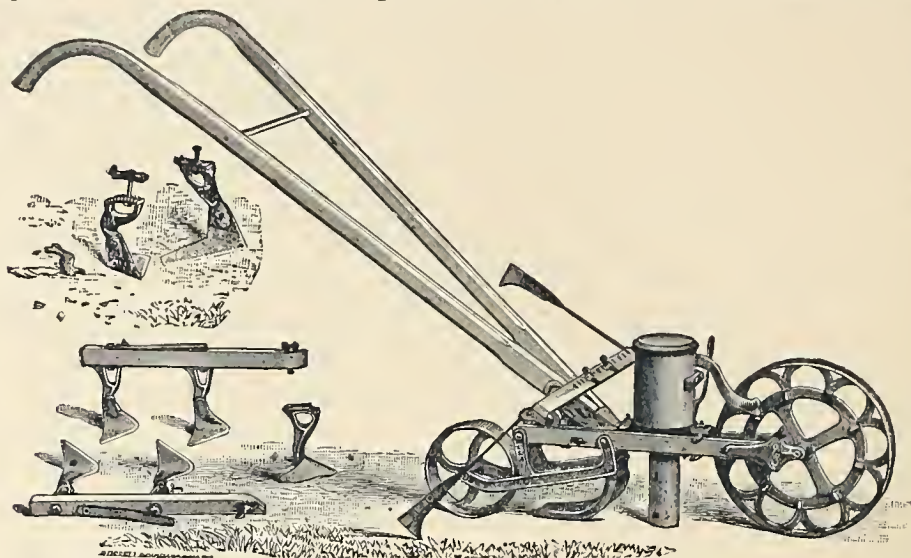


Fig. B 315. — Matthews Garden Drill, double wheel, with New Universal Hoe, Cultivator and Plow Attachments.

*Matthews Garden Drill, New Universal Model*, Double Wheel, with Hoe, Cultivator and Plow Attachments, illustrated at *Fig. B 315*, is the same machine as described above, and has the same cultivating attachments. It can be used either as a Double Wheel or Single Wheel machine, and change can be readily made. We do not particularly recommend a two-wheel seed-sower, as the nearer work may be accomplished by a one-wheel machine. The two wheels are desirable, however, when used as a cultivator or wheel hoe, as in this way the rows of young plants may be straddled and the cultivating done on both sides of the row at one passing and in same manner as described under the New Universal Double Wheel Hoe illustrated on page 68 although the arch on the latter admits of cultivating plants of a larger growth.



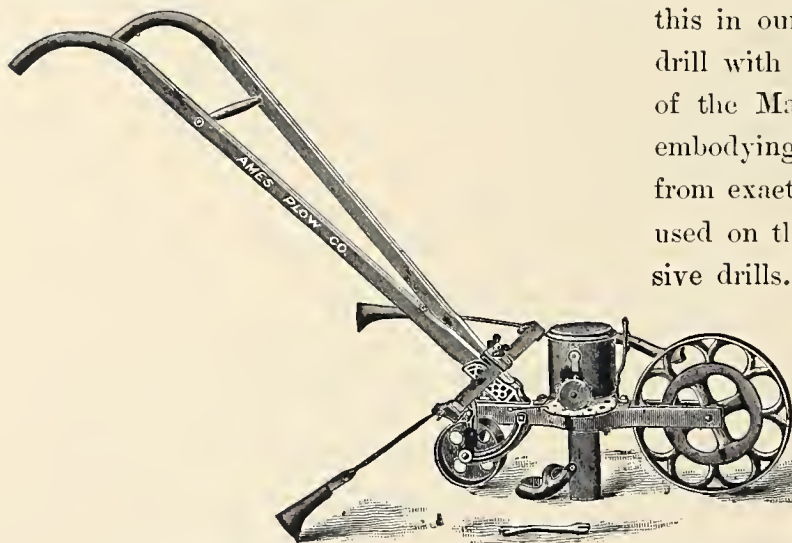
**Matthews Combined Drill, Cultivator and Hoe**, illustrated at *Fig. B 316*, is a complete combined implement. When used as a drill it possesses all the features of the separate Matthews Drill, except it is of smaller size. It will sow all the differ-



**Fig. B 316.**—Matthews Combined Drill, Cultivator and Hoe.

ent varieties of vegetable seeds as well as that, and when used as a Cultivator or a Hoe, it is substantially like the Matthews Hand Cultivator or Wheel Hoe, as shown on page 69 and is fully equal to either of them. Therefore in this there is combined all three of those implements in one, and it cannot fail to give the best of satisfaction to any one wanting a combined implement.

**Matthews Garden Gem Drill**, which we illustrate at *Fig. B 317*, has been perfected to meet the demand for a low-priced drill. We have not only accomplished



**Fig. B 317.**—Matthews Garden Gem Drill.

this in our design, but here offer a drill with all the essential qualities of the Matthews principal, even to embodying Seed Dial and Indicator, from exactly same patterns as those used on the larger and more expensive drills. We do not recommend

it for use instead of the larger drills, but we are sure that all in want of such a drill as we represent this to be, will find it to their advantage.

to buy the Matthews Garden Gem. This drill does not have the new seed Cut-off, but the Agitator can be checked same as in the larger drills.

**Seed-Sower, No. 0**, shown by *Fig. 334*, is a small hand-drill with brush cylinder, and is a cheap, light sower, well adapted to the wants of those who cultivate

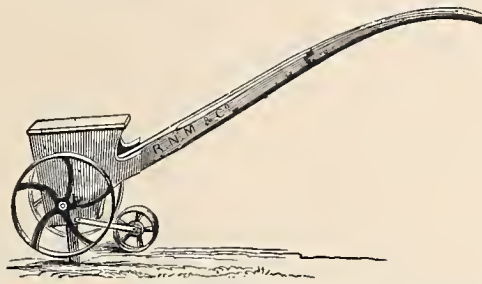


Fig. 334. — Seed-Sower, No. 0.

garden, root, and vegetable crops, and will sow all such crops except peas and beans. It opens the ground, sows the seed, and covers and rolls it at one operation.

*Seed-Sower, No. 1, or Improved English Drill*, represented by *Fig. 335*,

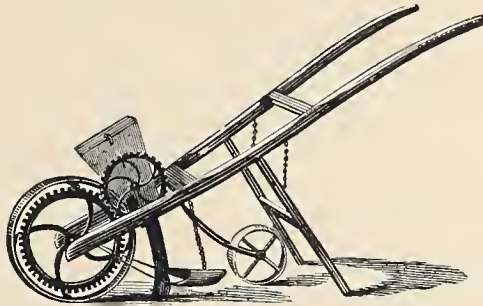


Fig. 335. — Seed-Sower, No. 1.

is a size larger than No. 0, though designed for sowing the same kinds of seeds in the garden and field. The brush-cylinder within the hopper is worked by gearing.

*Seed-Sower, No. 2*, represented by *Fig. 336*, combines several important improvements upon the ENGLISH DRILL, particularly in those additions which fit it for

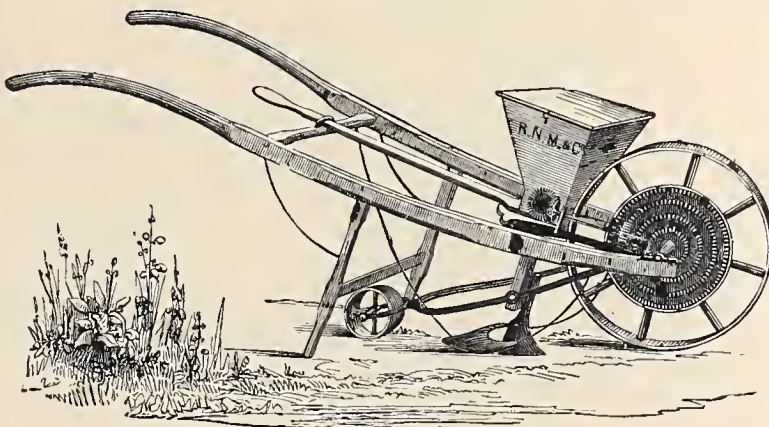


Fig. 336. — Seed-Sower, No. 2.

sowing large seed. The brush and block cylinder (shown detached in *Fig. 337*), which distribute the seeds, are worked by graduated rows of iron eggs or gearings, regulating the speed of the cylinder or brush, which operate simply and uniformly. are durable, and not liable to get out of order. The brush is used for small seeds, and the cylinder for corn, beans, and peas.



**Seed-Sower, No. 3**, represented by *Fig. 337*, is adapted to hand or horse power, and to sowing seeds continuously in drills, or planting them in hills. By change of cylinders (shown detached in illustration), it sows or plants large or small seeds. The

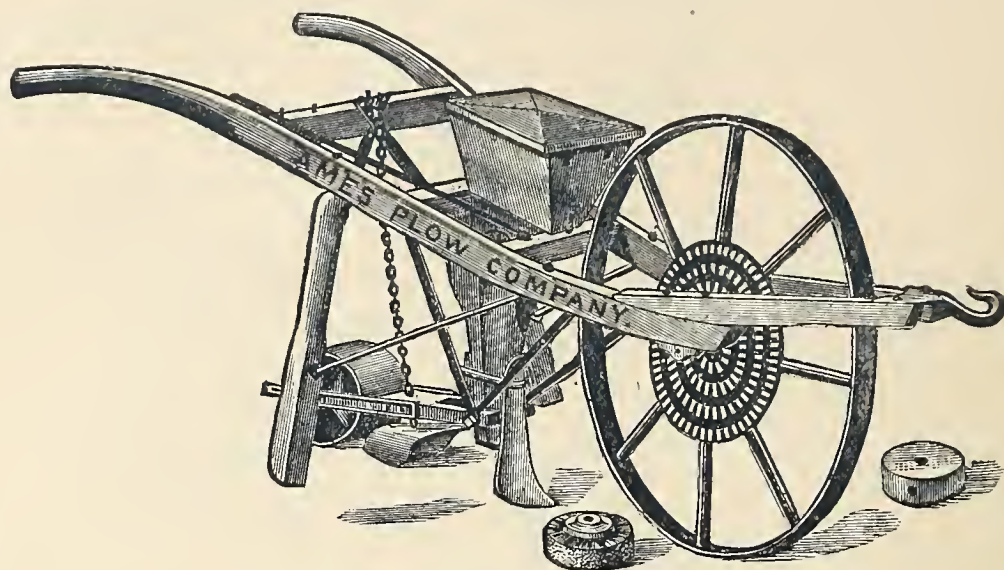


Fig. 337. — Seed-Sower, No. 3.

gearings, for the purpose of producing a rapid or slow motion in order to adapt the machine to different kinds of seed, are simple yet excellent: made of iron, they are durable, and work with regularity and precision.

**The Boston Planter**, represented by *Fig. 338*, for horse or hand power, is sold

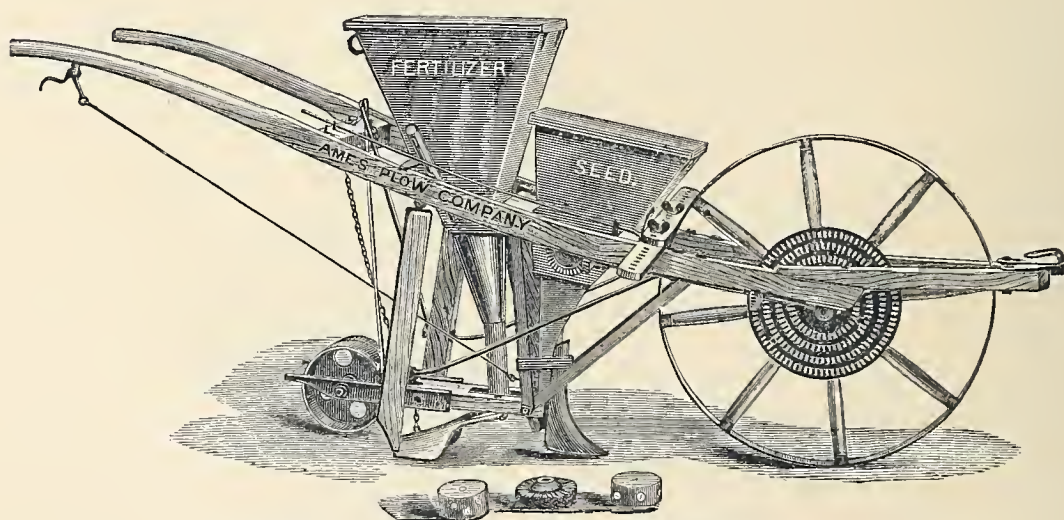


Fig. 338. — Boston Corn and Seed Planter.

as a plain planter, as a planter with fertilizer attachment, and as a planter with fertilizer and horse-hoe attachment, making it a cheap and effective implement.

It at one process opens its furrow, gauges, drops, covers the seed, and rolls it down, and also measures and marks off the distance for the next row or drill to be planted. It plants all kinds of seed, from corn, beans, peas, etc., to the smallest and



varied forms of garden-seeds, in hills or drills, at any distance between the seeds or hills. With it one man and a horse can plant from seven to ten acres of corn per day.

*The Improved Billings Corn Planter and Fertilizer*, represented by *Fig.*

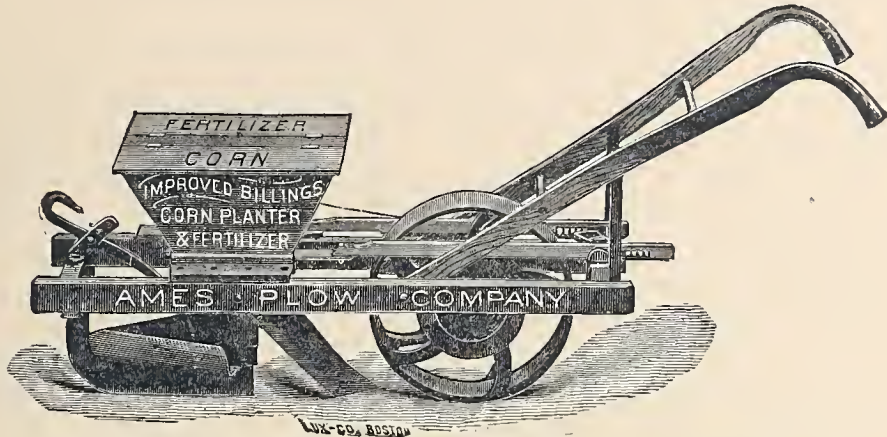


Fig. 339.—Improved Billings Planter and Fertilizer.

339, for planting field, ensilage, and fodder corn, broom-corn, beans, and other seeds of like size, also for dropping beet-seed, when specially arranged, has proved itself superior to all other machines made for the purpose.

The planter is made in four sizes; and each size may be regulated to drop four different distances apart, as noted below:—

14-inch wheel for planting,	5	1-2,	11,	22,	or	44	inches apart.
16 "	"	"	"	6,	12,	25,	50 "
18 "	"	"	"	7,	14,	28,	56 "
20 "	"	"	"	7	1-2,	15,	31,
						62	"

It is perfectly adapted to every requirement, durable and simple in construction, not liable to get out of order, and any one can at once understand and manage it. It performs work with certain and good effect on stony and sward land, as well as on mellow intervals or other smooth land, thus asserting its superiority over all other planters. One horse is sufficient for draft, and seven to ten acres can be planted by one man in a day. The work can be done at once, and when the ground is in best condition to receive the seed, and far better than it is possible to plant by hand. The importance in the saving of time will be readily understood; and the superiority of work done is substantiated by the fact that corn planted by this machine germinates much quicker, and comes up much more uniformly, than if planted by hand.

The hopper above the beams is made with two apartments, one for the seed, and the other for the fertilizer. The plow below opens the furrow, at the same time clearing away all inequalities within the reach of the covers, which follow in the uniform and pulverized seed-bed thus prepared. The seed drops in the clear furrow opened by the plow, falling through the hollow standard to the bottom. By an ingenious arrangement, the fertilizer drops at the same instant in the rear separately and to the right and left, and mixes with the soil, thus avoiding all danger of injury to the seed

This important feature of dividing the fertilizer, and then mixing it with the soil, is not embodied in any other planter. The curved blades, or coverers, directly in the rear of the plow, cover the seed and fertilizer to the desired and uniform depth; and the broad wheel, by which the machine is operated, also rolls or presses the soil down upon the seed much more uniformly than is ever done by hand.

This machine may be readily gauged to drop any desired quantity of seed or fertilizer at a time, at equal and various distances apart, in hills or drills of uniform depth.

**The American Corn Planter** is the same as the Billings just described as far as seed planting is concerned, but on the American the fertilizer dropping device is omitted. This machine is intended for use in sections where there is no necessity of using fertilizer in connection with the seed.

**Batchelder's Corn-Planter** is represented by *Fig. 340*. The share, or plow,

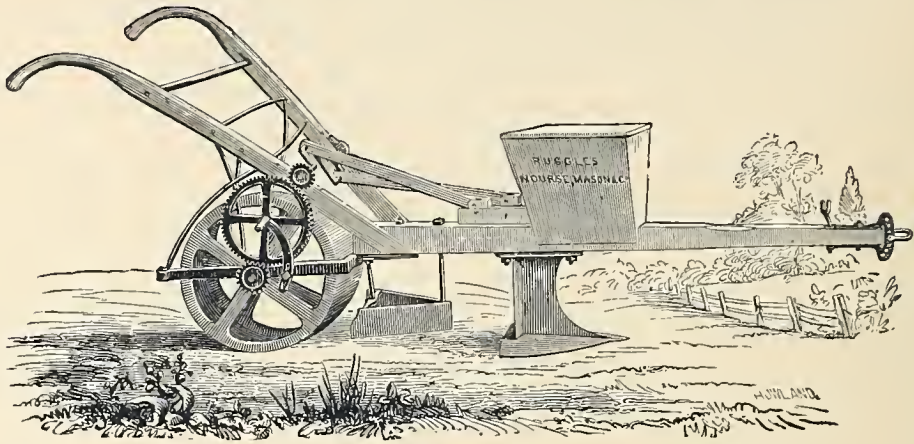


Fig. 340.—Batchelder's Corn-Planter.

opens the furrow, and the corn is then dropped by arms moving horizontally. These arms have holes that can be altered to a proper size for receiving any required number of grains; and, as they pass in and out of the hopper, the holes are filled with seed, which is dropped into a tube conducting it to the bottom of the drill made by the plow. A triangular iron follows, to remove all lumps and stones; and a roller, to compress the earth over the seed. The arms are made to drop the corn nearer or farther apart by using different sized gears. It will plant from seven to ten acres per day.



## CULTIVATORS, HORSE-HOES, ETC.

CULTIVATORS and Horse-Hoes are of various kinds, but all partaking of the same general principles, being intended to be drawn by one horse, or some for use by hand for garden-culture. The cultivator is used between the rows of crops, such as corn, potatoes, root-crops, cotton, and sugar-cane, though it is frequently employed to pulverize the ground preparatory to seeding, and for this purpose is every way superior to the harrow as to results. It is also used for covering the seeds of grain.

When intended to work between rows, it is constructed to expand or contract according to the width. In its various modifications, the cultivator exterminates grass

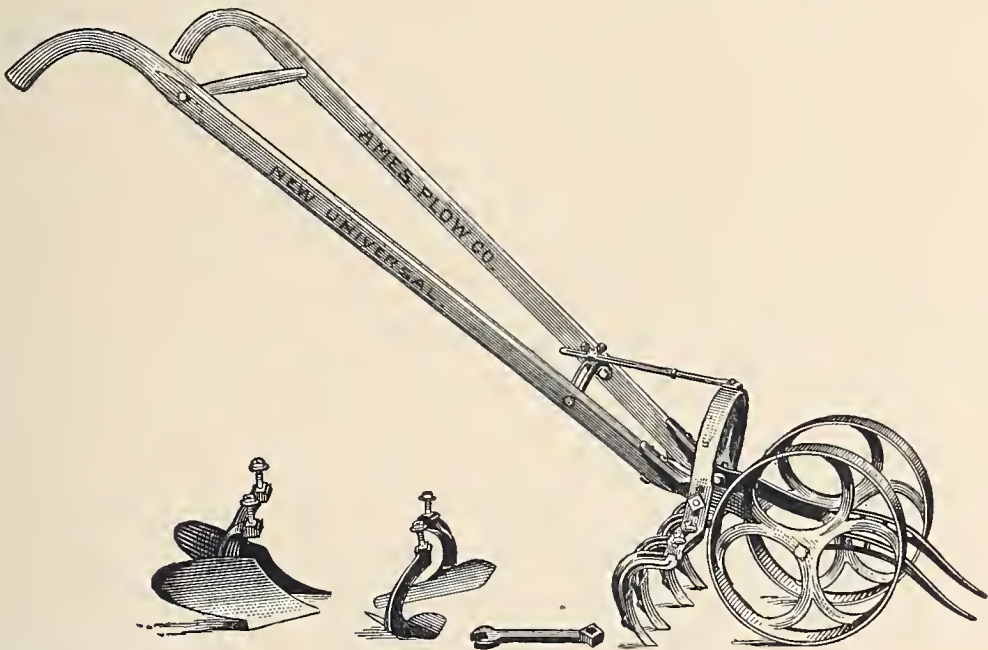


Fig. B 601.—New Universal Hand Double Wheel Cultivator.

and weeds much more effectually than the hand-hoe, leaving them on the surface to be wilted by the sun, and at the same time pulverizing the surface-soil, rendering it light and friable, fully prepared to admit dews and rains, and to be acted upon by atmospheric influences promoting the growth of plants and saving hand-labor.

*The New Universal Hand Double Wheel Hoe, Cultivator and Plow*, illustrated at *Fig. B 601* and *B 602*, is specially designed for working both sides of the row at one passing. This new hand implement embraces all the good points of older efforts in the same line, and in addition offers new features which cannot fail of appreciation. The special recommendation is the adjustable arch, by which not only the depth of work can be gauged, but which, by an ingenious device, enables the teeth



to be pitched at any angle desired. It can be pushed ahead, but better results are obtained by using it same as a scuffle-hoe with successive strokes of length to suit the nature of soil and crop. It can be used either astride of or between rows. To work both sides of row at one passing, the attachments can be set to suit width of crop to be cultivated, keeping row midway between the wheels; no need to watch the teeth. The Hoe Blades can be set to turn in or out as desired by the operator. For Cultivator Teeth, four are furnished with each. Two Cultivator Teeth can be used at desired width to mark out rows. The Plows for furrowing can be set close together and turn outward. For covering, set to width desired and turn inward. The depth can be regulated by adjusting wheel arms in the three holes provided on each side of the Arch. The depth can also be regulated by pitching the Arch by means of the Arch Brace and the Thumb Bolt where it connects to lower Handle Brace.

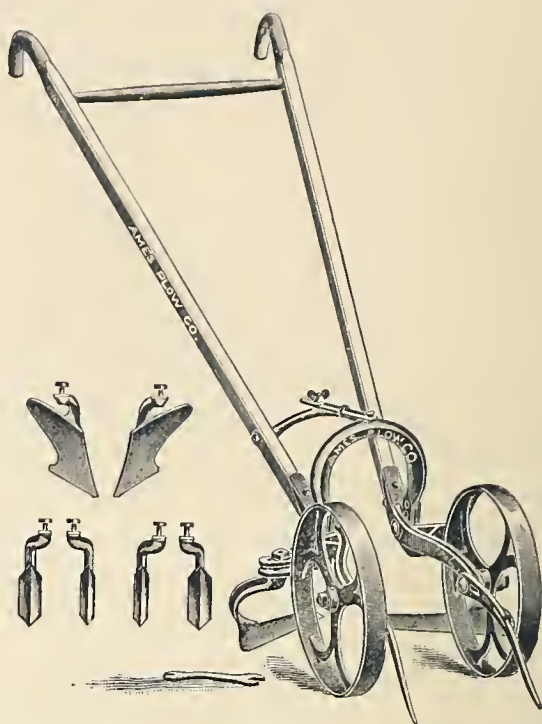


Fig. B 602.—New Universal Double Wheel Hoe.

The Leaf Guards are to prevent wheels

*The New Universal Hand Single Wheel Hoe, Cultivator and Plow* is illustrated at *Fig. B 603*. This is also an improvement over other tools of this type.

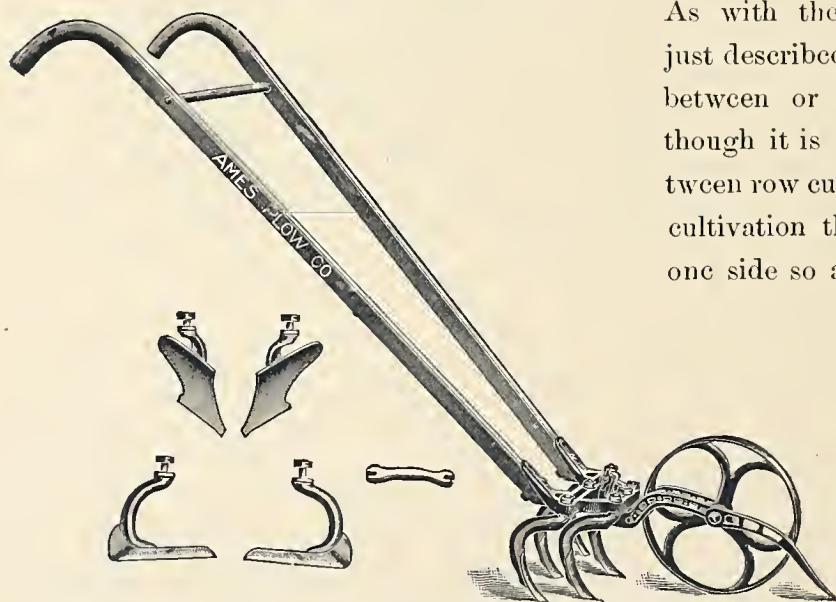


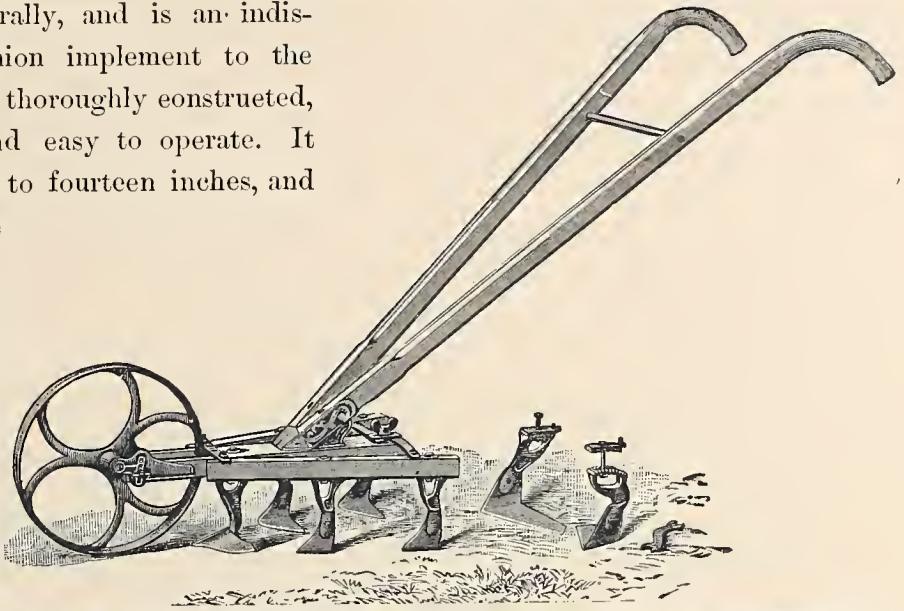
Fig. B 603.—New Universal Single Wheel Hoe, Cultivator and Plow.

As with the Double Wheel Hoe just described, it can be used either between or astride the rows, although it is really intended for between row cultivation. For straddle cultivation the wheel can be set to one side so as to bring the row of young plants under centre of frame. Later cultivation must be done between the rows. The adjustment for graduating the depth of cultivation is unique and easily accomplished.

The attachments are

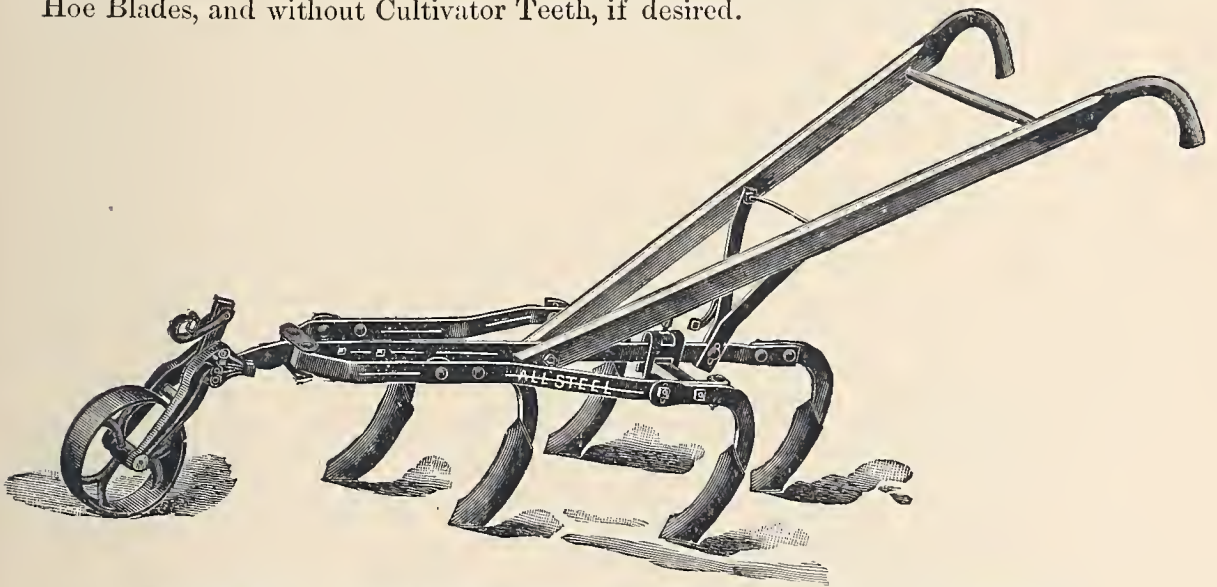
one pair Hoes, five Cultivator Teeth, one pair Plows, and one Vine or Leaf Guard.

*The Matthews Hand Cultivator and Wheel Hoe*, shown at *Fig. B 604*, is one of the best implements in use for weeding between row crops, and for flat cultivation generally, and is an indispensable companion implement to the Seed Drill. It is thoroughly constructed, very durable, and easy to operate. It spreads from six to fourteen inches, and will cut all the ground covered, even when spread to its greatest extent. The depth of cultivating may be accurately gauged by raising or lowering the wheel, which is quickly



**Fig. B 604.—Matthews Hand Cultivator and Wheel Hoe.**

done. We can furnish for the Matthews Hand Cultivator, if desired, a pair of superior style Hoes, with long steel blades, for use in exchange with the Cultivator Teeth, which are easily and quickly adjusted, or we can furnish the implement with Hoe Blades, and without Cultivator Teeth, if desired.



**Fig. B 612.—Ames Steel Frame Horse Hoe and Cultivator.**

*The Ames Steel Frame Horse Hoe and Cultivator*, presented at *Fig. B 612*, with five Cultivator Teeth, is the most popular cultivating implement of the day. It is recommended for close work among all growing crops. The Horse Hoe attachments consist of a pair of side hoe teeth and a rear hoe tooth as shown in position in *Fig. B 618*. The side hoe teeth, which are adjustable to any position desired, turn the earth up against the plants or can be reversed to turn the soil away



from them, destroying weeds and stirring up the soil. It expands from nine to thirty-six inches. This implement possesses combinations for many other uses, such as a furrower, a coverer, a marker, etc., and is very convenient.

*The Expanding Lever*, shown in Harrow Cultivator, *Fig. B 620*, can be attached to the Ames Horse Hoe and Cultivator. The advantages of this mode of expanding and contracting are evident as the operation can be performed in an instant, regulating to the exact width desired even while in motion.

*The New Universal Horse Hoe and Cultivator*, shown at *Fig. B 618*, is in working qualities practically the same as the Ames described above; but as the lever expanding adjustment is an improvement over former devices, we now offer a marked improvement over the lever. Where a lever is used the adjustment is accomplished at the same time and equally on both sides. With the New Universal the

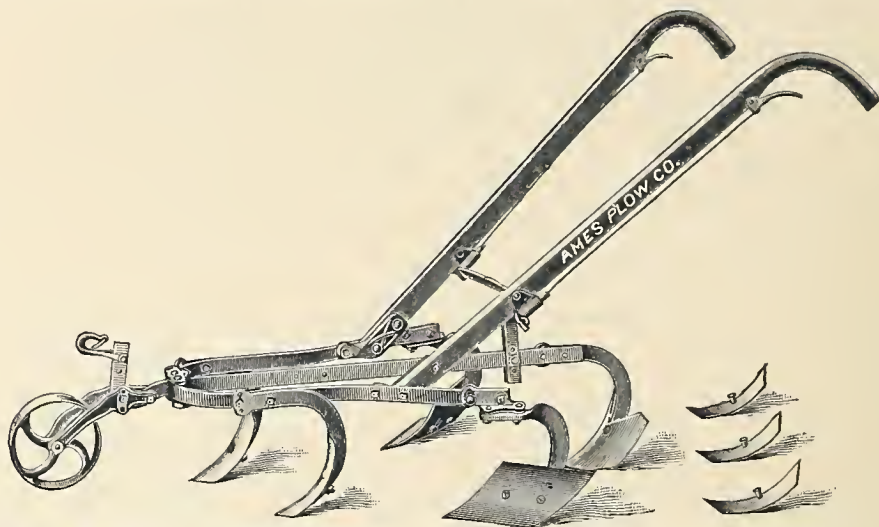


Fig. B 618.—New Universal Horse Hoe and Cultivator.

adjustment can be instantly made to any width and on either or both sides at will, without letting go of either handle, even while in operation. This is especially advantageous in close cultivation of growing crops and on side hill where the tendency to work down hill may be offset. This implement is the lightest combined Hoe and Cultivator made, but it is in strength equal to any.

*The Hilling Moulds*, represented in *Fig. B 613*, are for use in connection with the Ames and New Universal Cultivators, and are especially desirable in working

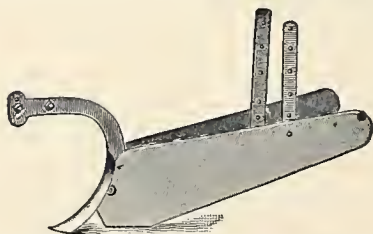


Fig. B 613.—Hilling Moulds.



Fig. B 614.—Shallow Sweeps.

potatoes and other crops requiring a large amount of earth to be thrown to the plants.

*The Shallow Sweeps*, represented at *Fig. B 614*, are another variation of attachments suitable for use with the Ames and New Universal Cultivators. They



are used instead of the Hoe Teeth when it is desirable to cultivate flat, as for garden vegetables, strawberries, beans, etc., and they are specially recommended for destroying the Canada Thistle and other weeds. Sometimes five are used at a time but usually two ten inches wide and one twelve inches wide constitute a set.

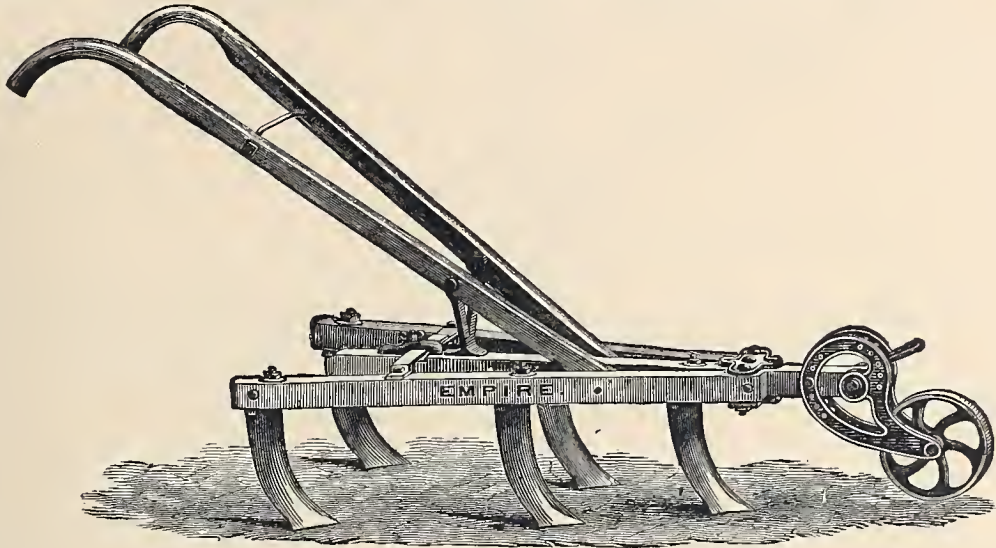


Fig. 352.—Empire Expanding Cultivator.

*The Empire Expanding Cultivator*, represented by Fig. 352, is with teeth of steel bolted to the frame, and is quite popular, being a light and efficient implement.

*The French's Patent Cultivator*, represented by Fig. 356, is specially designed for market-gardens and may be run close to small plants just coming up, as turnips, carrots, onions, mangolds, or nursery stock, or tender plants newly set, as strawberries, asparagus and tobacco, without covering them with earth, as all wide-tooth

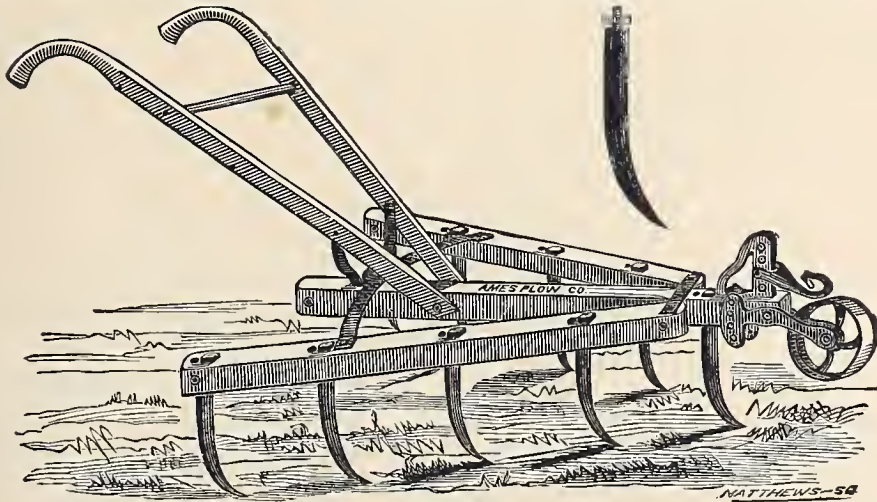


Fig. 356.—French's Patent Cultivator.

cultivators do. It effectually draws out witch-grass, sorrel and other weeds. It pulverizes deeper and better than any other implement. The frame is adjustable and has nine curved teeth, set cornerwise, which hold on to the ground. It runs steadily is easily guided, and is of easy draft, because of the small size and peculiar form of the teeth.

*The Ames Steel Frame Harrow Cultivator*, shown in *Fig. B 620*, is to all intents and purposes the French's Cultivator described at *Fig. 356*, in STEEL, but

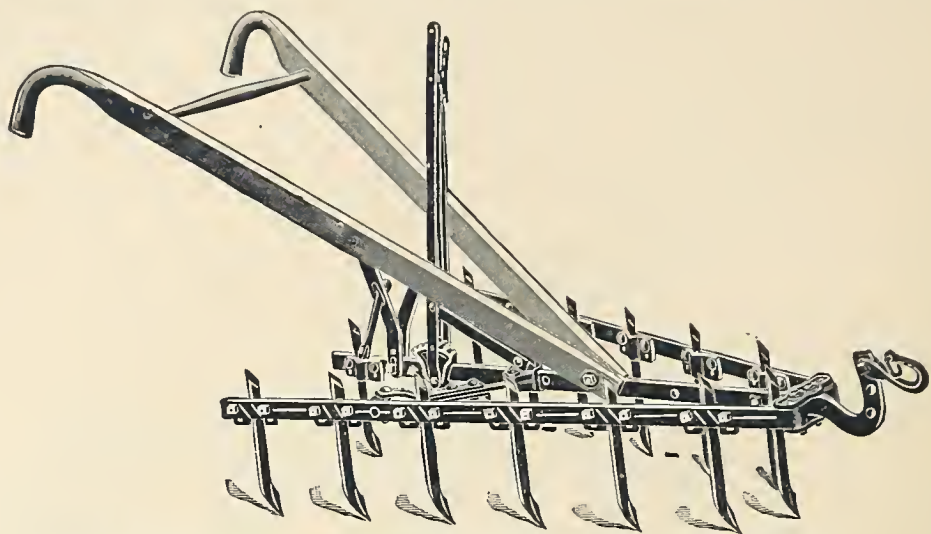


Fig. B 620. — Ames Steel Frame Harrow Cultivator.

unlike the French's, the teeth are adjustable for use either side up, or in a slanting or perpendicular position. The changes can be readily made. The illustration shows the lever which has already been described under *Fig. B 612*, but we can furnish them without the lever and with an ordinary expander. The implement is usually rigged with wheel.

*The Boston Horse-Hoe*, *Figs. 359 and 360*, is designed for market-gardens and the culture of corn and root crops: it is a complete pulverizer, and mellows the

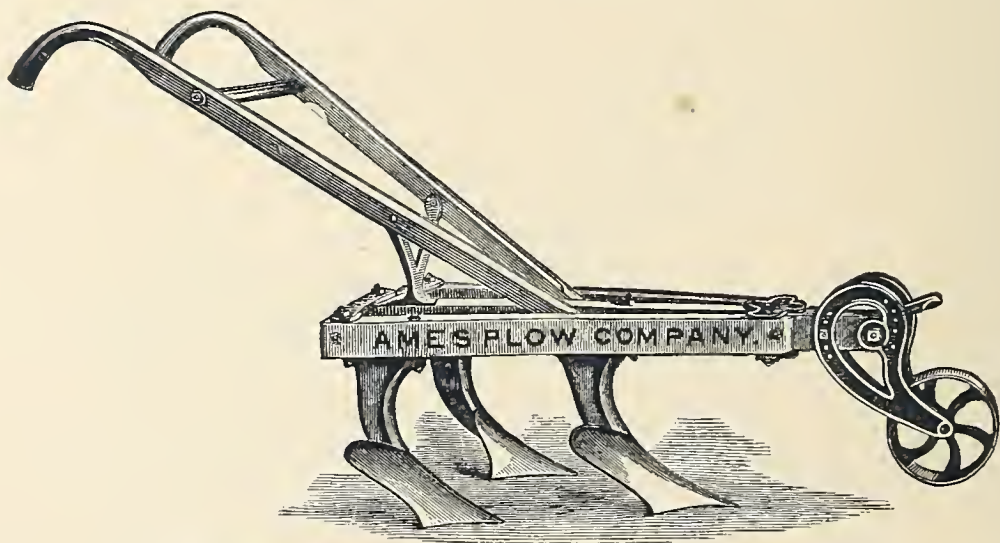


Fig. 359. — Wood Frame Boston Horse-Hoe.

surface of plowed land preparatory to putting in crops. It mixes manure with the soil, and cannot be clogged or choked with weeds, stubble, or sods. It works well on hard and compact, rough or stony land, and is very effective in destroying twitch-grass. It does the work of a cross-plow or harrow in preparing land for grass with-



out turning up the old sward. It is constructed with improved plows or moulds: the rear plows are reversible, so as to throw the earth to or from the plants. It can be contracted to fifteen inches in width, and expanded to thirty-six inches, and gauged to

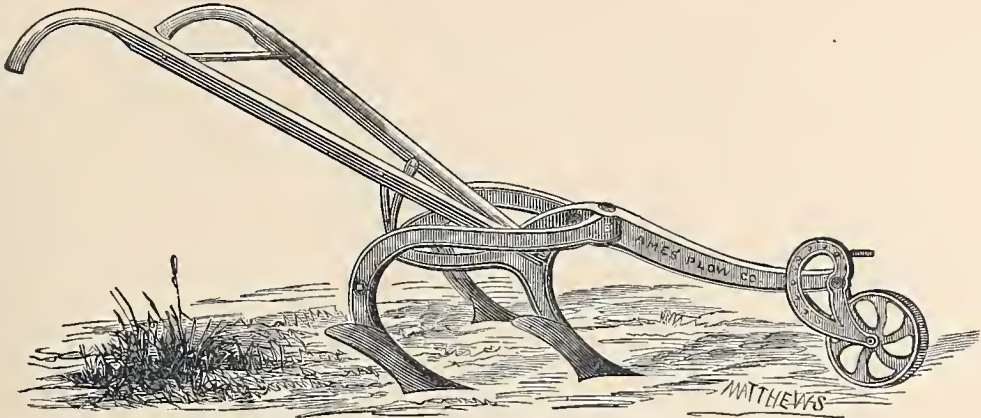


Fig. 360. — Iron Frame Boston Horse-Hoe.

work any depth from three to seven inches. A pair of larger rear plows for hilling are furnished when ordered.

We make these horse-hoes with wood frame, as represented by *Fig. 359*, which is the style generally used, or with iron frame, as represented by *Fig. 360*.

*The Knox Horse-Hoe*, represented by *Fig. 361*, designed for the hoeing or cultivation of corn, the various root-crops, cotton, hops, young nurseries, and broad

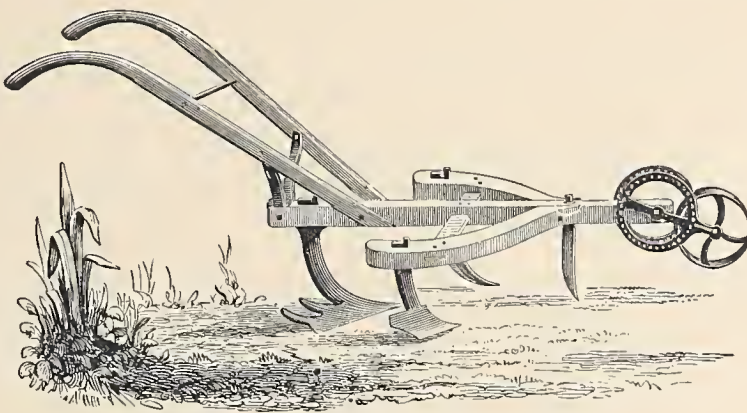


Fig. 361. — Knox Horse-Hoe.

crops generally, is quite light, easily managed, and the small size of light draft for a horse or mule: it is a thorough pulverizer of the surface-soil, and exterminator of weeds and grass. The forward tooth is simply a cutter to keep the implement steady and in a straight, forward direction; the two side or middle teeth are miniature plows with steel moulds which may be changed from one side to the other so as to turn the earth from the rows at first weeding, when the plants are small and tender, or towards them in later cultivation; the broad rear tooth with steel cutting-plate effectually disposes of grasses and weeds, cutting off or rooting up all that come in its way, sifting the earth and weeds through its iron fingers in the rear, leaving the weeds on the sur-



face to wilt and die, and the ground level and mellow. There are three sizes, small, medium, and large.

*The Knox Expanding Horse-Hoe*, represented by *Fig. 362*, is the same im-

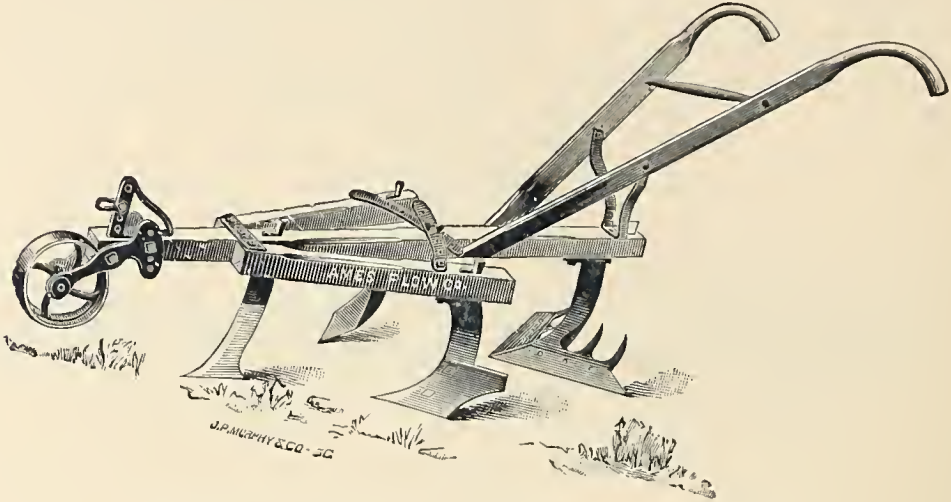


Fig. 362.—Knox Expanding Horse-Hoe.

plement as just described, but with frame that can be expanded or contracted at will. It is also made in three sizes. The KNOX HORSE-HOES have proved themselves by far the best weed-extermimators made, and large numbers are in use.

*The Knox Carrot and Cotton Weeder* is an adaption of the KNOX HORSE-HOES for the cultivation of these and other like crops. The forward cutter tooth, as in the horse-hoe, serves to balance the implement, and keep it in a straight course. The broad rear tooth with steel cutting-plate spreads ten inches each way from the centre, the cutting-edge being on an easy angle backward and outward from the point. A narrower or broader rear tooth may be used to suit the width of rows.

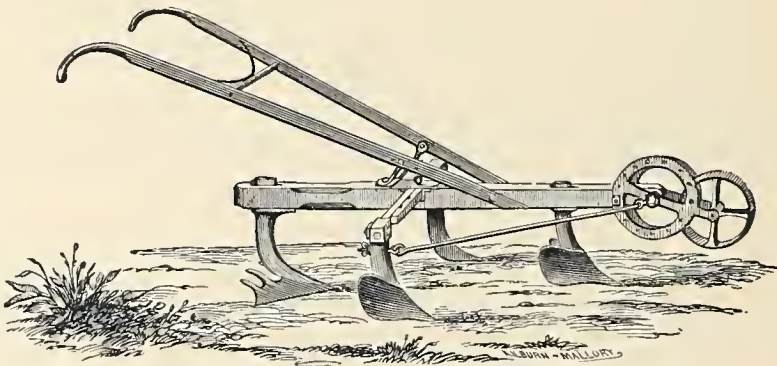


Fig. 364.—Howe's Expanding Horse-Hoe.

*The Howe's Expanding Horse-Hoe*, represented by *Fig. 364*, is light, easily managed, and pulverizes and mixes the surface, and is consequently highly destructive to weeds and grass. It is made with parallel expanding bars, so that it may be worked as wide or narrow as desired.

*The Knox Gang-Cultivator*, represented by *Fig. 366*, in which illustration we show the No. 2 size with six plows, is a combination of the KNOX HORSE-HOE and the GANG-PLOW. The beam to which the team and handles are attached, is placed in the line of draft of the implement, and has the cutter or curved tooth of the KNOX HORSE-HOE forward, and a similar tooth with a double share in the rear, for the purpose of balancing the cultivator. Another beam, placed diagonally to the draft, or to the first-named beam, contains a row of small steel plows, each cutting and covering a breadth of earth of about seven inches, inverting and pulverizing the soil to the depth of one, two, or four inches, and raising a fine tilth.

The cultivator is perfectly balanced, so as to run straightly and steadily. For

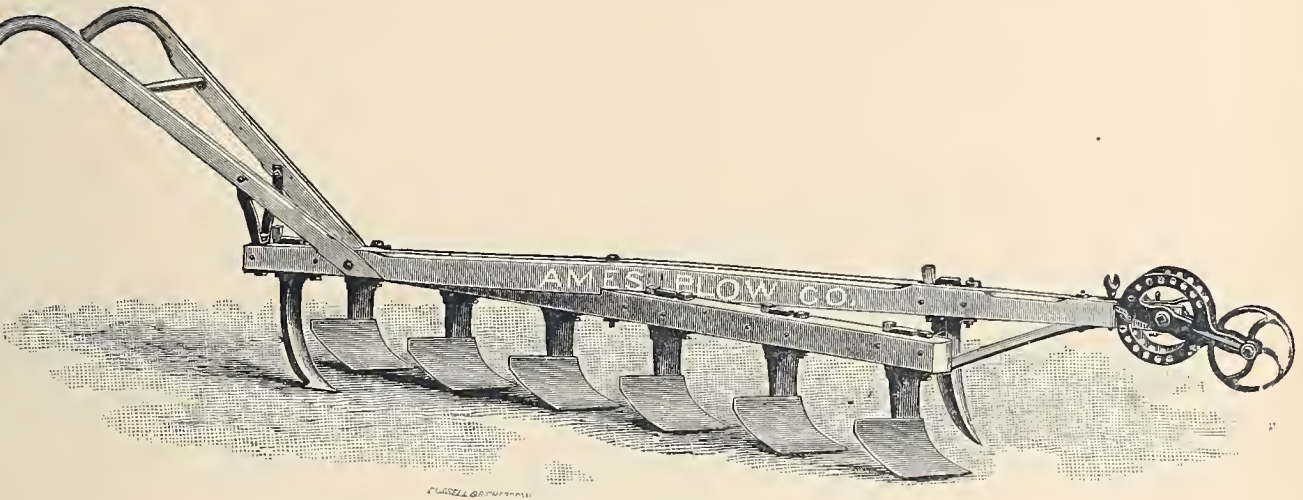


Fig. 366. — Knox Gang-Cultivator, No. 2.

covering grain, or preparing surface-soil for crops of any kind, and covering compost manure, it is often preferable to the harrow. The No. 1, four-plow cultivator, is for one horse, and the No. 2, six plow, for two horses. We also make the No. 2 cultivator with four plows.

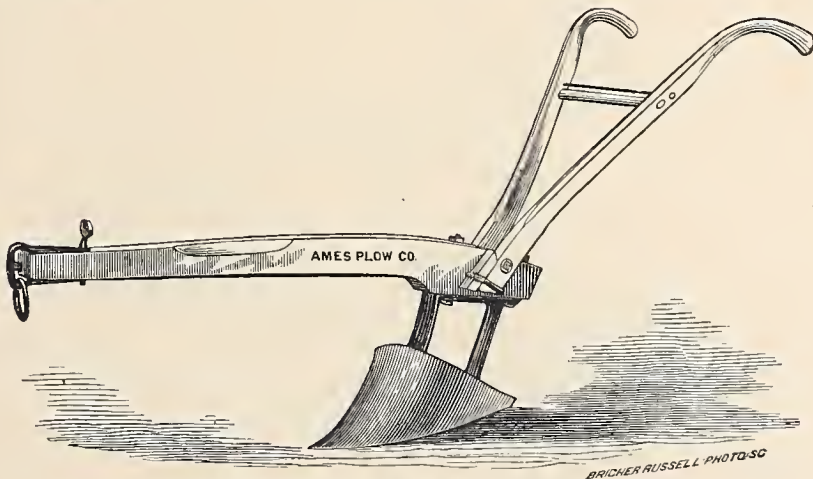


Fig. 369. — Steel-Mould Cotton-Sweep.

*The Steel Mould Cotton-Sweep*, represented by *Fig. 369*, has a large demand in many markets, and is used in the cultivation of various crops. It is made



with steel mould, very light, and adapted to cultivation in those sections. There are four sizes, from eighteen to twenty-four inches.

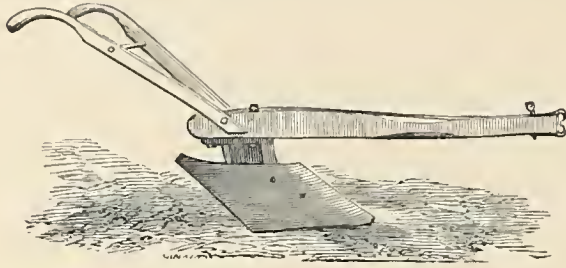


Fig. 370. — Cotton-Scraper.

*The Cotton-Scraper*, represented by *Fig. 370*, is an implement the importance of which every cotton-planter understands and appreciates. It is made either of wrought or cast iron.

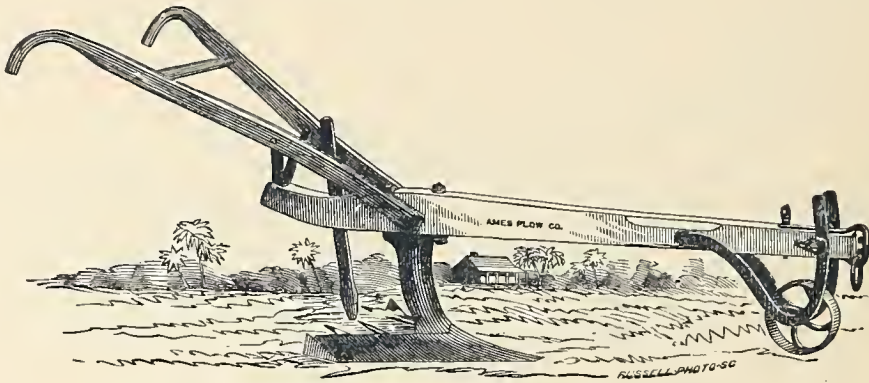


Fig. 371. — Triangular Cane-Cultivator.

*The Triangular Cane-Cultivator*, represented by *Fig. 371*, is an implement used in many cane-growing sections.

*The Horse Potato-Digger*, represented by *Fig. 372*, is made with a high stand-

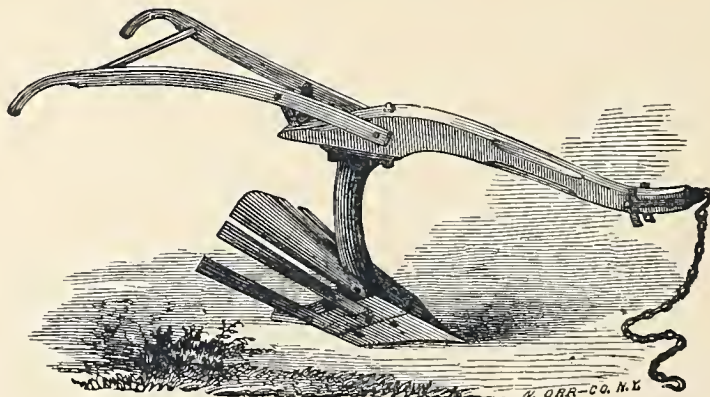
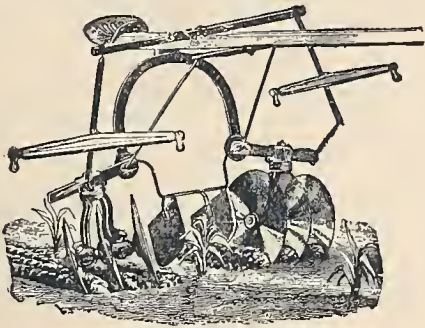


Fig. 372. — Horse Potato-Digger.

ard, thus adapting it for working among weeds and potato-vines without clogging. In addition to its value as a potato-digger, it does excellent work in cultivating between the rows. The rear prongs are of wrought-iron, and are attached by bolts. We also make them with round side prongs, which are preferred by some for digging potatoes.

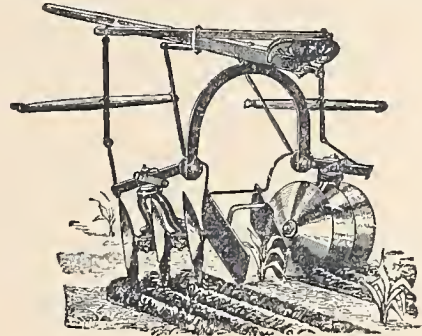


*The Warrior Reversible Disk Cultivator*, illustrated at *Figs. B 641* and *B 642*, is specially adapted for working corn, cotton, potatoes, small fruit and garden truck. It thoroughly works rowed crops, turning soil either toward or from the



**Fig. B 641.**

Cultivating *towards* the row, *outer* teeth working deep.



**Fig. B 642.**

Cultivating *from* the row, working level.

**Warrior Reversible Disk Cultivator.**

row at pleasure, leaving the earth light, and grass and weeds completely buried. Corn and potatoes can be hilled as effectually as with a hoe. The cutting disks can be adjusted to any angle desired and can be set to cut deep in centre and shallow next the row or vice versa, or to cut level. The shields can be detached when working taller crops. We can safely say that all hand work with hoe can be saved by using this cultivator.

## FIELD, ROAD AND GARDEN ROLLERS, ETC.

*The Field-Roller*, represented by *Fig. 341*, is used on plowed land, to level and smooth it after sowing down to grass, forcing sods and small stones into the soft ground, pressing the light, loose soil of the surface around the seeds of grain and grass, securing a sure and quick germination and growth of the seeds, and preparing

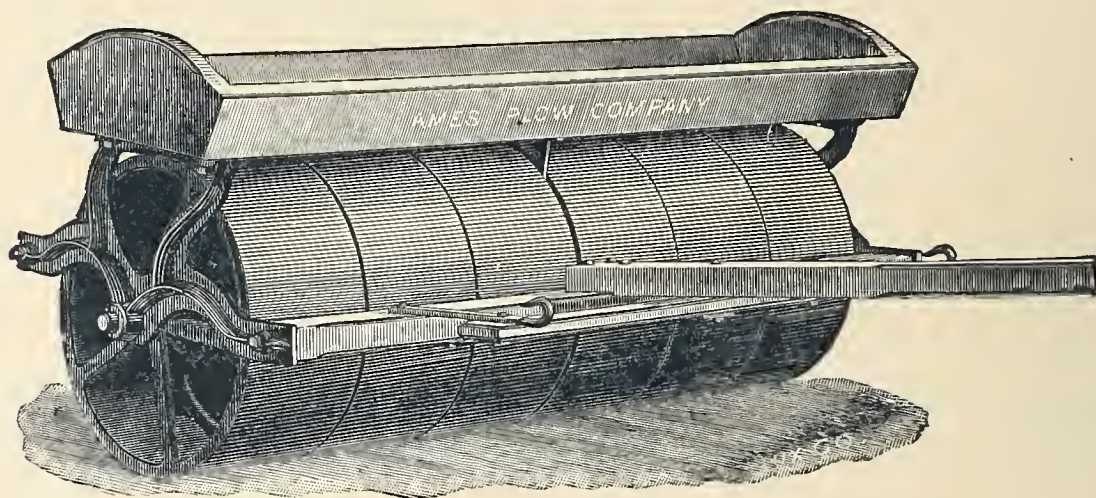


Fig. 341. — Iron Field-Roller.

a smooth, even surface for the reaper, mower, scythe, tedder, and rake. In spring there is frequently great advantage in rolling lands recently sown to grass; as the land that has been uplifted by the frost, exposing the roots of plants, is replaced by the operation with benefit to the growing crop. It is also useful in road-making.

It is a strong, durable implement, constructed of iron, excepting the tongue and box, which are of wood. It is made in sections, and of the following sizes: —

3 sections, each 12 inches long by 20 inches diameter.									
4	"	"	12	"	"	"	20	"	"
5	"	"	12	"	"	"	20	"	"
4	"	"	12	"	"	"	24	"	"
5	"	"	12	"	"	"	24	"	"
6	"	"	12	"	"	"	24	"	"
4	"	"	12	"	"	"	30	"	"
5	"	"	12	"	"	"	30	"	"
6	"	"	12	"	"	"	30	"	"

The sections are placed on a wrought-iron arbor or axletree, on which they each revolve independently, so that, in turning the roller at the ends of the field, the ground is not left uneven. The three and four section rollers are usually furnished with

shafts for one horse. The box attached is for loading, to give additional weight to the roller when needed, and to receive stones picked up on the field.

The roller is particularly advantageous on light lands, where its compressing effect, especially in dry seasons, very much increases the product of crop.

*The Garden and Lawn Roller*, represented by *Fig. 342*, is a useful implement for rolling lawns, walks, and driveways, and beds after planting. To the arbor inside the cylinders are attached counterbalances, which add weight to the implement, and cause the handle to stand perpendicular when not in use. As with the FIELD-ROLLER, this roller is made in sections, and of the following sizes:—

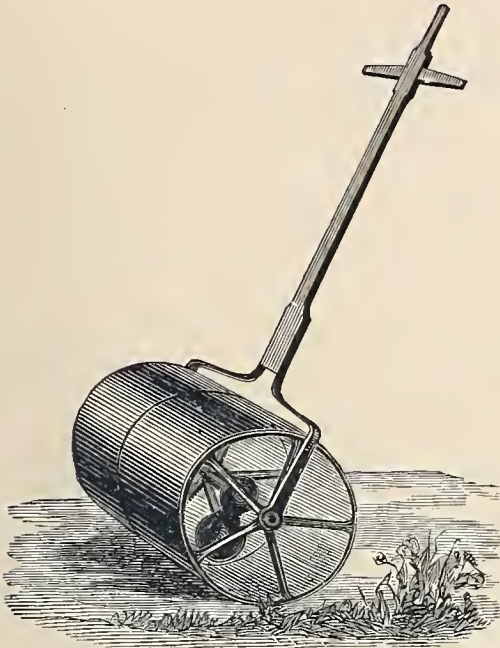


Fig. 342.—Garden and Lawn Roller.

2 sections, each 7 1-2 in. long by 15 in. diameter.

3	"	"	7 1-2	"	"	15	"	"
1	"	"	12	"	"	20	"	"
2	"	"	12	"	"	20	"	"
1	"	"	20	"	"	20	"	"
1	"	"	12	"	"	24	"	"
2	"	"	12	"	"	24	"	"
1	"	"	12	"	"	28	"	"
2	"	"	12	"	"	28	"	"

*The Road Roller*, of which we present an illustration at *Fig. B 346*, is for roadways, streets, etc., and is especially desirable for macadamizing. Every city and town, and proprietors of parks and cemeteries, should be supplied to insure good roads.

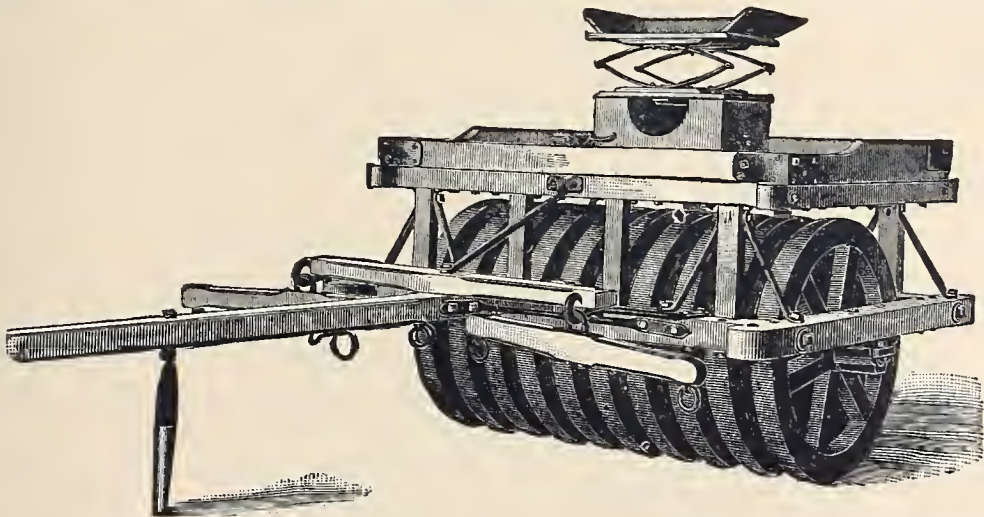


Fig. B 346.—Road Roller.

The Roller has nineteen narrow sections, ten large ones thirty-five inches in diameter and nine smaller ones thirty-two inches in diameter, set alternately, for the purpose of bringing more weight on the crushed stone, and thus preparing a more evenly and



compactly pressed roadbed than can be obtained with a wide, flat section roller. The Sections act independently on the axle and are self-clearing. Width of roller on the ground five feet. The bearings sustain weight of frame and driver only. Highly recommended by all cities and towns using them. The weight of the ordinary size is about two and one-half tons, but we can also furnish them weighing three and one-quarter tons and upwards.

*Crosskill's Clod-Crusher and Pulverizer*, of which we present an illustration at *Fig. 343*, an English machine, is made like an ordinary roller in sections with the following differences: Each section is but three inches wide, and they are kept from touching each other by washers on the main shaft. Each alternate section

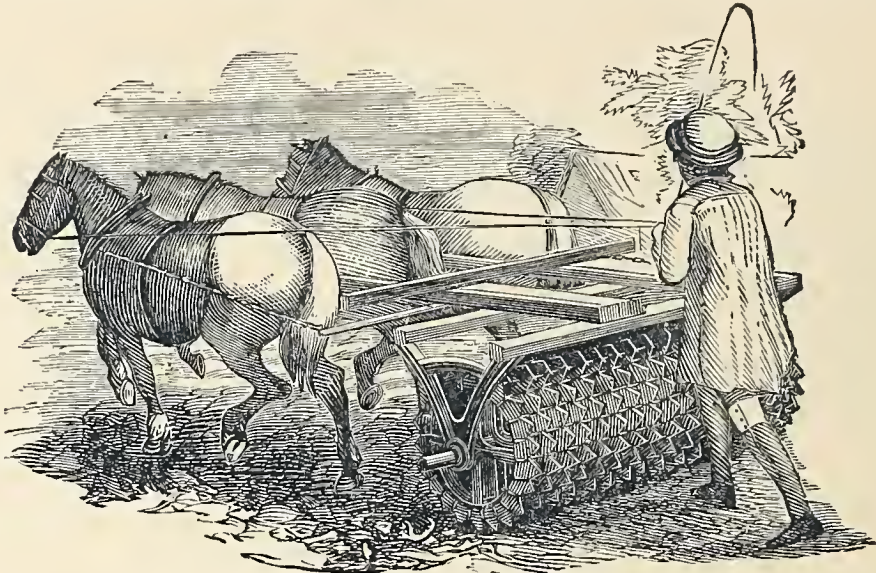


Fig. 343.—Crosskill's Clod-Crusher.

has an opening or hole in the centre, fitting the shaft; while those between are of increased diameter, and have openings an inch larger than the shaft. These latter revolve eccentrically instead of concentrically as the former; and any lumps or clods received between the rollers are sure to be rubbed to pieces, for the rollers are not only toothed on their face, but at their sides. It may with propriety be called a pulverizer and presser.

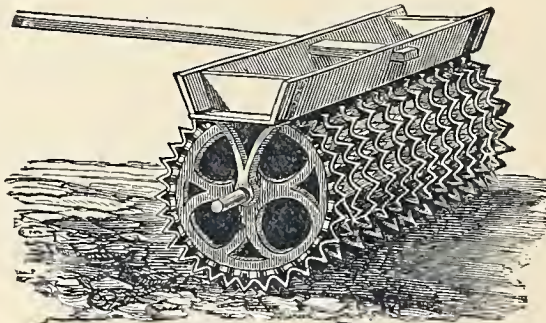
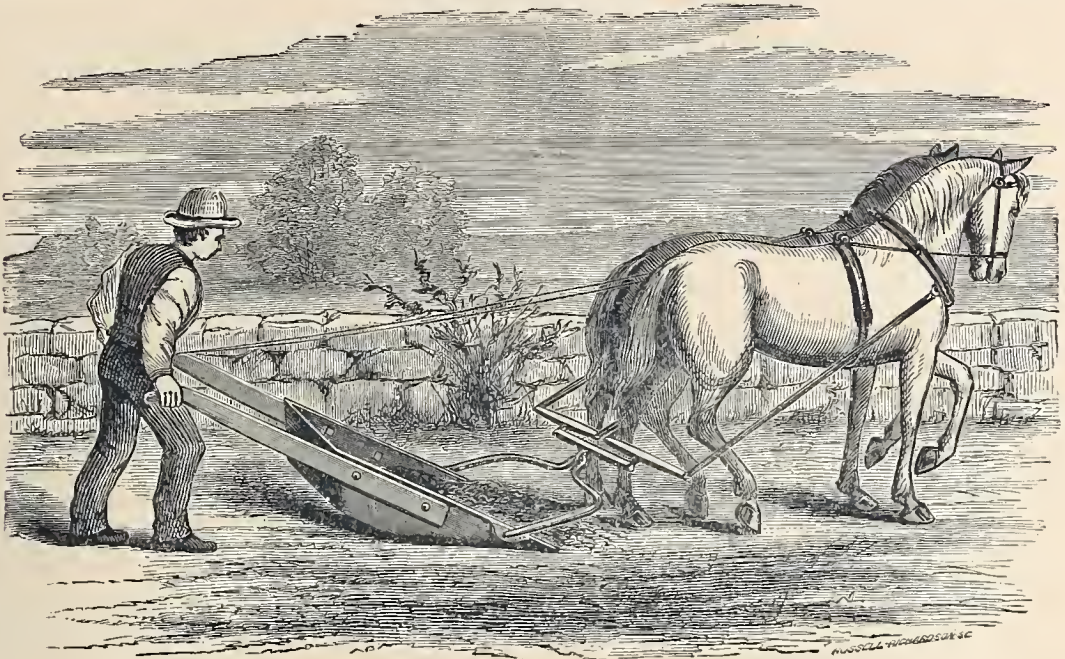


Fig. 344.—American Clod-Crusher.

*The American Clod-Crusher*, represented by *Fig. 344*, is modified from the English machine. It is used wherever clay soils prevail.

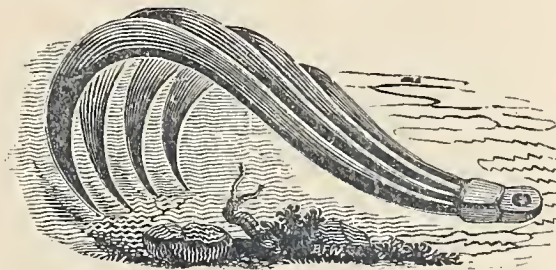
*The Road Scraper* is represented in operation by *Fig. 345*. In making and grading roads and railways, and for use in constructing dams, digging cellars, and for



**Fig. 345.—Road-Scraper.**

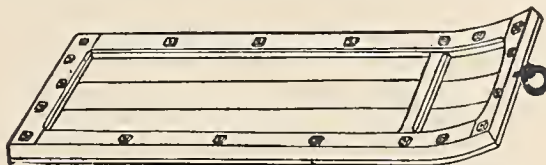
the general purpose of removing earth expeditiously on the farm, this implement is indispensable.

We make seven sizes, and for colonial markets they are often furnished with chain-bails in place of the bail shown in illustration.



**Fig. 483.—Root and Brush Puller.**

*The Root and Brush Puller*, represented by *Fig. 483*, is a great labor-saver in clearing new lands or pastures. It is made with two, three and four prongs.



**Fig. B 484.—Drag or Stone Boat.**

*The Drag, or Stone Boat*, illustrated at *Fig. B 484*, needs no description as its uses are well known. We make a size suitable for one horse, also one for two horses. It is a very convenient thing to have on a farm.



## HAYING AND HARVESTING MACHINES.

IN no branch of agriculture has the advance in labor-saving machinery been so marked as in the application of power for the harvesting of the hay and grain crop. Every advance during the last quarter of a century has been in the line of a reduction of the cost in the preparation and ingathering of these crops.

The introduction of the mower gave such a facility in cutting grass in large quantities, that the demand naturally arose for some implement by which it could be rapidly cured. To meet the demand, the tedder was invented, than which no implement was more gladly welcomed by the farmer; as it gave him the facility in curing, by which he was enabled to keep pace with his increased facility in cutting grass.

The remaining requirement, a substitute for hand-raking, was met by the Wheel Horse-Rake, by means of which the completion of the hitherto laborious task is accomplished.

We present below illustrations and descriptions of the Tedder and the Rake, and we are sure that in the AMERICAN HAY TEDDER and the AMERICAN HAY RAKE we have the very best machines to be obtained.

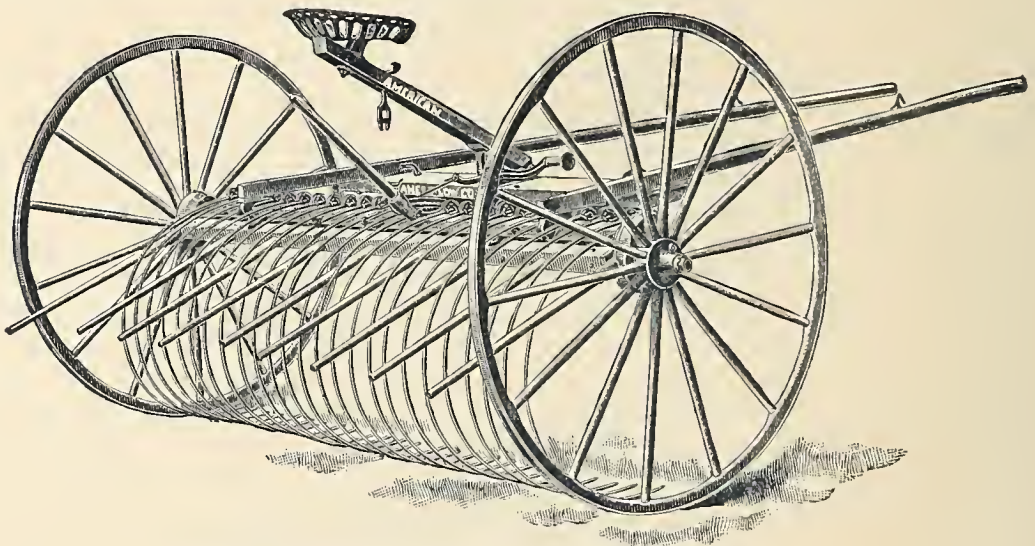


Fig. B 378.—The American Horse-Rake.

*The American Self-Dump Horse Rake*, which we present at *Fig. B 378*, is one of unsurpassed strength and durability and also one which has many points of excellence. A boy can easily operate it. It is made of best material and finished in our usual fine style.

The illustration shows the style of tooth used, which does not have a coil, but instead there is a separate steel spring attached to the head of each tooth which



gives it great elasticity but still does not in any way interfere with the firmness of the tooth even on rough ground. This dispenses with the pressure bars ordinarily used upon Horse Hay Rakes for holding down the teeth when raking, which are liable to cramp and break the teeth when passing obstructions. The upper end of each tooth runs into an iron holder which is easily accessible and will not wear, and each tooth is entirely independent from the others, and can be readily attached or detached in a few seconds.

The teeth themselves are of excellent material, steel and spring tempered, so that even when strained, they will come back to place again. There are more teeth than found in most other rakes, each tooth is independent in its action and a single tooth can be inserted or removed at any point in the rake without interfering with any bolts or any of the other teeth.

The Dumping Device is the simplest and easiest worked of any rake made, and absolutely does away with the necessity of a hand lever, although there is a hand lever supplied. When the trip is touched by the foot the lock catches at both ends, instead of at the centre only, and therefore there is no strain. The rake is so nicely balanced too, that it works almost automatically, and the teeth are thus prevented from falling back heavily after dumping the windrow.

The arrangement of the Rake is also such that it will rake cleaner and with an absence of scratching and dust-raising. It will rake as clean as by hand-raking, and for gleanings grain or raking scatterings is without a rival. Large windrows can also be raked with ease.

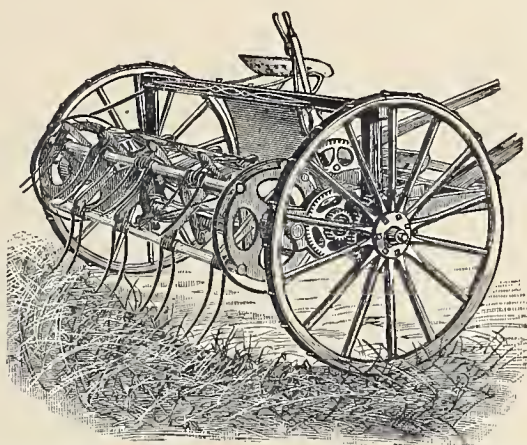


Fig. B 379.—Garfield's "The American" Hay Tedder, with 16 forks, for one horse.

*Garfield's "The American" Hay Tedder*, represented by *Fig. B 379*, is the best and only perfect machine for turning or tedding hay. It is simple, durable, of light draft, and by its use the most important farm product can be cut, cured, and stored in one day, the quality of hay very much improved, and its value materially increased.

Grass, when cut by a mowing-machine, is evenly distributed over the surface of the ground, a non-conducting layer exposed to the scorching rays of the sun on the upper side, but liable to remain wet underneath until evening. The labor of turning this



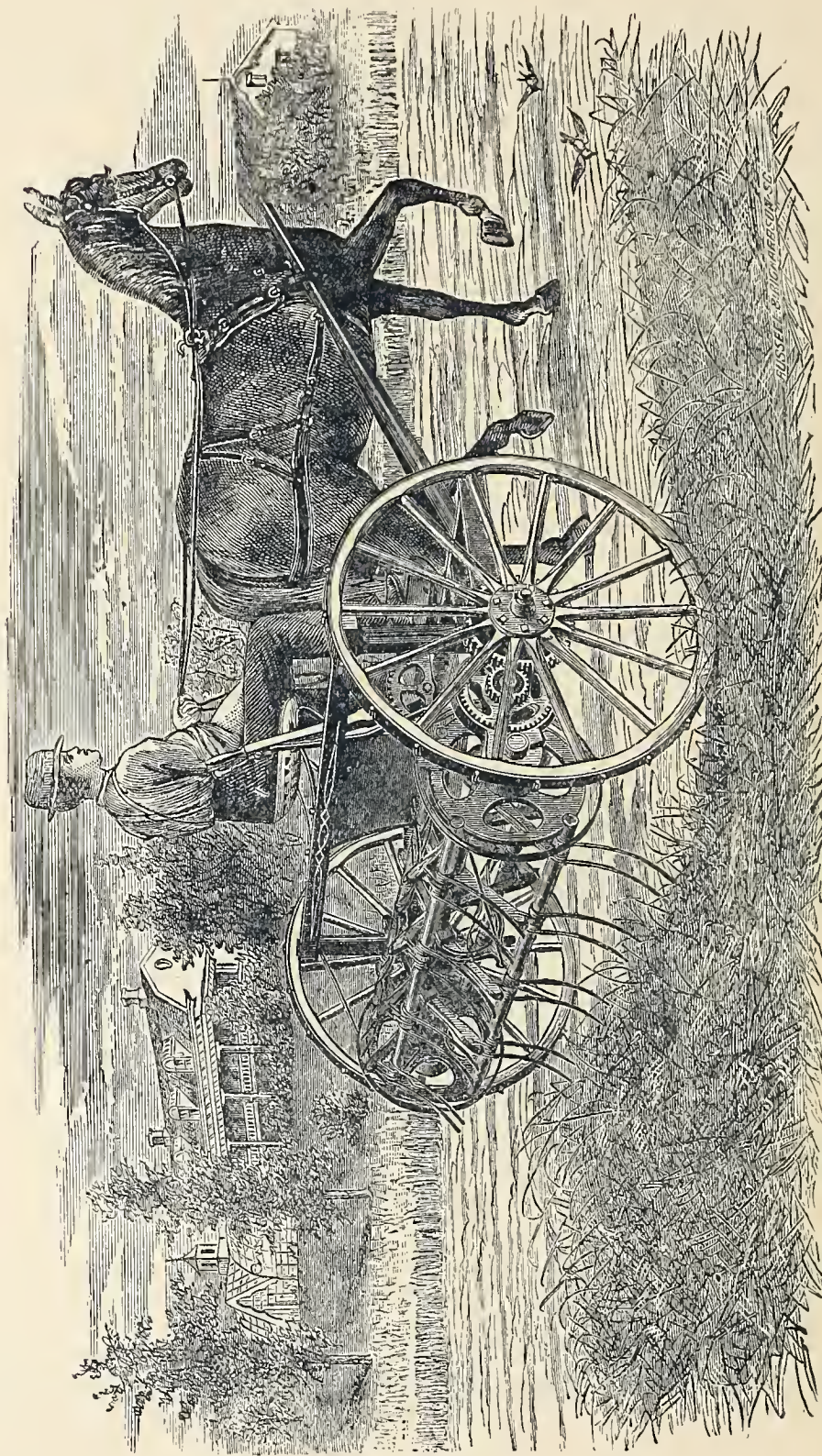


Fig. 381. — Garfield's "The American" Hay-Tedder, with 16 Forks, for One Horse.



properly is even greater than shaking out the swaths when grass has been cut with a scythe; and again, since the use of the mower has become so general, the farmer is enabled to cut far more grass than formerly, which in many cases involves the necessity of hiring additional help to properly take care of it; while in others he hesitates to mow down as large a quantity as he otherwise would, unless he has the adequate means of properly securing his crop without danger from storms.

By the use of the AMERICAN TEDDER, all extra help is dispensed with; and the hay is not only quickly dried, but it is done in a most thorough manner, for the arrangement and operation of the forks are such as to not merely turn the hay, but also to open it thoroughly, and shake out every wisp without loss by too rough handling, leaving it turned up, its fibres crossed in every direction, and in the very best condition for the admission of the air and the rays of the sun. Its action is so rapid, and the effect so thorough, that it is fully capable of curing ready for the barn any given amount of grass, each fork in the machine performing more work than a man can do with a hand-fork, while the draft upon the horse is very light.

GARFIELD'S "THE AMERICAN" HAY-TEDDER is constructed upon principles peculiar to itself. While combining all the features requisite to make a successful tedder, it avoids the many objections that are so apparent in others, and its peculiarities render it far superior to any thing in use for the purpose. The machine is mounted on drive-wheels, and is furnished with spring-forks attached to a light reel in a very ingenious manner. The forks are made to revolve very rapidly, and will thus do great execution, even while the horse is walking slowly.

It will readily pass over any obstruction that a rake can without damage to it, and without any effort on the part of the driver; and as no skill or labor is required in operating the machine, a boy ten years old answers the purpose as well as a man. It has been thoroughly tested; and a very large number have been sold since its first introduction, and are now in use in different hay-producing sections; and every farmer and mechanic who has seen these machines in the field, will testify to their successful operation in any place where the mower and the horse-rake can be used to advantage.

It is arranged with a lever for raising and lowering the reel, as the forks in action should be higher from the ground in heavy grass than when the crop is light.

We manufacture three sizes, as follows:—

Small size, for one horse, with 12 forks.

Medium size, for one horse, with 16 forks.

“ “ “ two horses, “ 16 “

Large “ “ “ “ “ 20 “

*The American Improved "Bagazo" Spreader*, the only machine in the market fully adapted to this work, is made with sixteen forks, and on same principle as the HAY-TEDDER just described, but specially adapted for this work. They are now in successful use in cane-growing sections, and large numbers are being sold. None but those who have used these machines can fully understand their value, espe-



cially at crop-time, when the help is needed for other work. They are easily managed, and combine lightness of draft, simplicity, and durability. A boy of twelve to fifteen years is needed, with a yoke of cattle, or one or two mules, to do the work of thirty or forty men. "Bagazo" spread by this machine will dry much faster than when turned by hand-labor: thus good fuel can be obtained, a most important article on sugar-estates.

**The Revolving Horse Hay-Rake**, represented by *Fig. 384*, is one of the simplest and cheapest in use, and is a good labor-saving implement. It has a double row of teeth pointing in opposite directions. When the hay is collected to the wind-row,

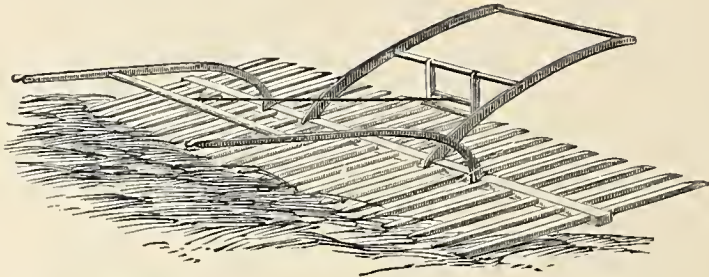


Fig. 384.—Revolving Horse Hay-Rake.

it can be readily discharged by raising the handles of the rake slightly, and enough for the forward row of teeth to touch the ground. The continued motion of the horse causes the head to revolve, bringing into operation the other row of teeth.

**The Wire Spring-Tooth Horse Hay-Rake**, represented by *Fig. 385*, is desirable for use on new, rough ground, where it has some advantage over those with wooden teeth. The teeth are made of stiff, elastic wire, on the points of which the

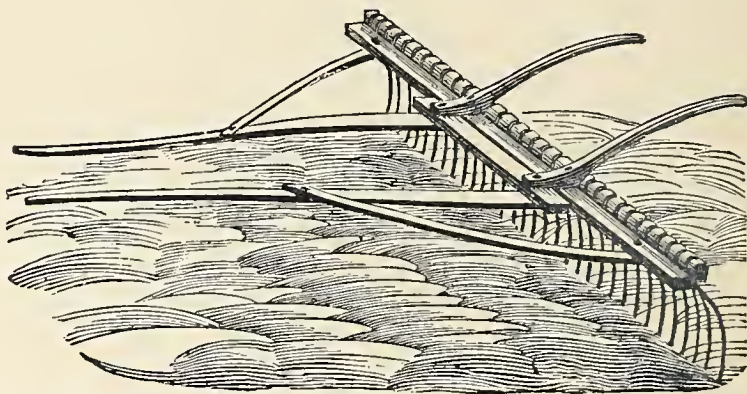


Fig. 385.—Wire Spring-Tooth Horse Hay-Rake.

rake runs: they bend in passing an obstruction, and spring back into place again. The rake is unloaded by simply lifting the lower handles, the upper ones being intended for holding and guiding. The rake is light, and about one-half its weight is sustained by the horse.

## HORSE-POWERS.

*The Union Railway Horse-Power*, represented by *Fig. 395*, one horse, and *396*, two horse, has the wood framework constructed similar to most of the tread, or endless, chain-powers in use, but much heavier and more durable in all its parts; and

All Powers furnished with  
Governor; and  
Slant or Level Tread as desired.

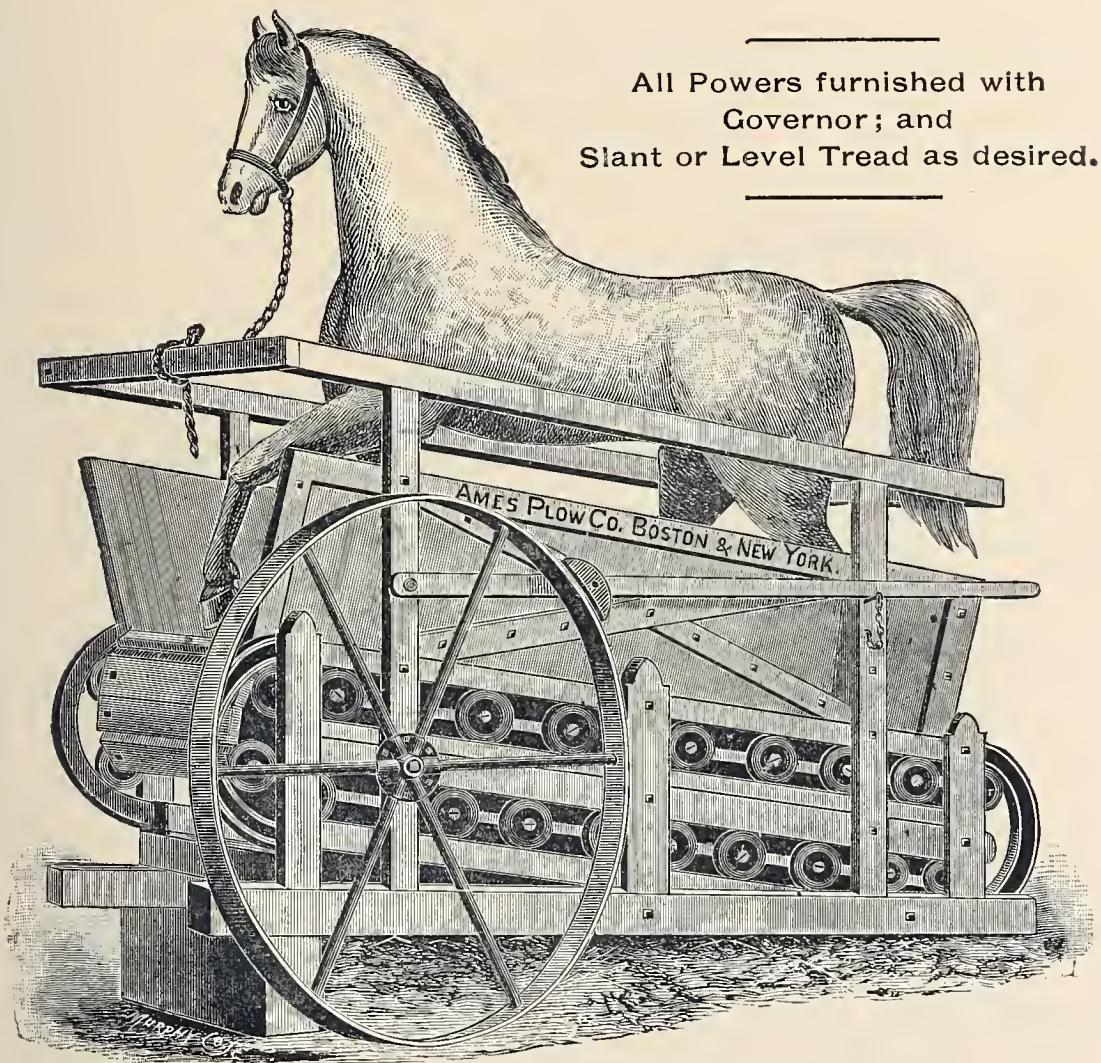


Fig. 395. — Union Horse-Power, One Horse.

the arrangement of the iron-work, or running-gear, is very much better. The chain-links are made with cogs; and the driving-gear is placed back from the end, directly under the horse, and is of sufficient diameter to cog into the chain-links, both at top and bottom of the gear, as shown in *Fig. 397*.

By this device, the propelling power of the horse is always acting directly on the



top of the driving-gear on the same plane, and consequently there is no loss of power, or increase of friction: the returning sections of the chain on the bottom track are acted upon in the same manner as the top portion. The power thus acts directly on

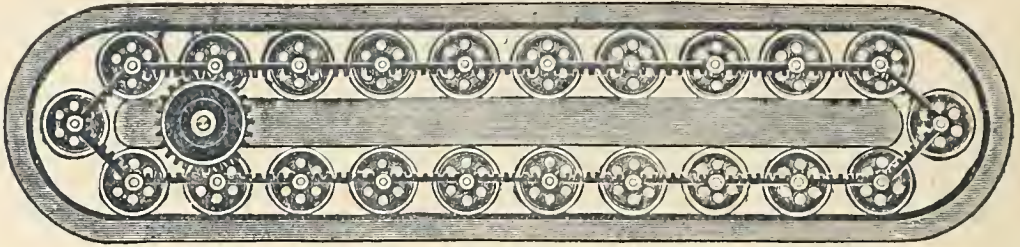


Fig. 397.—Showing arrangement of Driving-Gear and Chain-Links. \*

the chain, to propel it up the inclined plane (and not indirectly around the end of the track, as with machines constructed with spiders, or rolls, on the end): thus the connecting pivots of the chain are relieved of all strain and friction usually caused by passing the end track. By this cogging into both top and bottom, these powers can

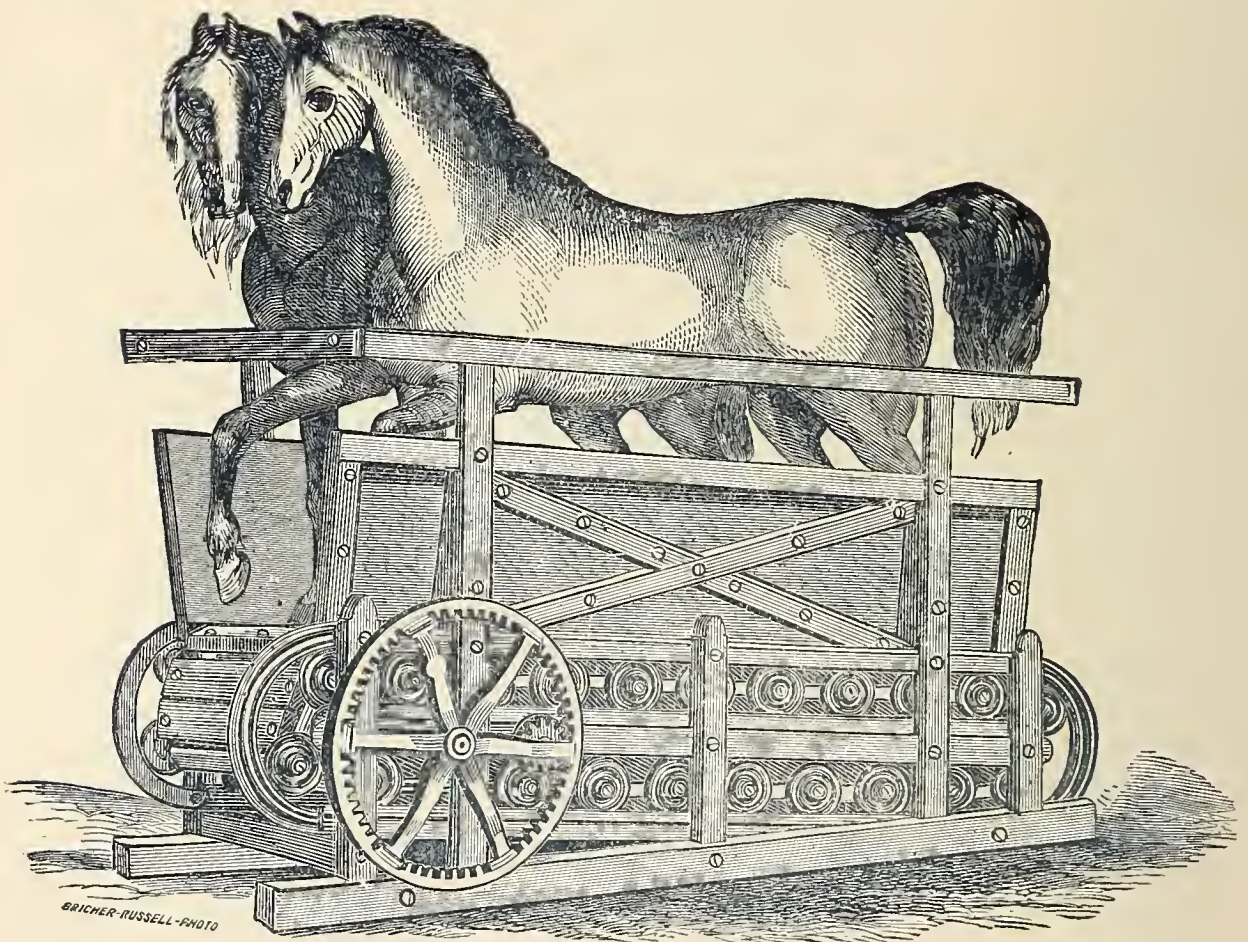


Fig. 396.—Union Horse-Power, Two Horse.

be constructed with long sections and large truck-wheels, without making the machine cumbersome. Long links are a decided advantage, as less truck-wheels are required; and the less the number of truck-wheels, the lighter the moving platform, and the



less the loss of power from friction. The gears and band-wheel are readily changed from one side of the machine to the other.

The following advantages over other horse-powers give these satisfactory results : —

1. It is the most durable of any horse-power in the market.
2. It requires the least elevation to obtain a given amount of speed.
3. This power is wider and longer than any other, giving ample room for the horses to walk with ease and safety.
4. The wheels are larger in diameter, and less in number, than those employed in any other horse-power, with the result of more power with less friction.
5. The platform-chain moves with a perfectly smooth and free motion.
6. All the pivots, boxes, wheels, and axles are chill-hardened and smooth, thus causing little friction, and adding greatly to the durability.
7. The power is applied at the top and bottom of driving-gear: by this means, the weight and power of the horse act directly to propel the machine with great force.
8. There is no strain on the chain in passing the end tracks.
9. There are no cross-rods between the treads to get bent out of place, and add to the weight of the moving platform.

These powers are constructed for one, two, and three horses.

THE TREAD, or lags on which the horses walk, is made in two styles, viz., the ordinary SLANTING TREAD, and what is known by the name of "LEVEL TREAD." The first needs no description, but of the latter we would say that in operation the Lags form a series of low steps with the edges taken off, so as not to catch the horses' hoofs, and when the power is raised for use the stepping places are level. It is claimed for this style of lag that the horses' feet are always in a natural position and that they can be worked without shoes and not slip.

THE GOVERNOR, or Speed Regulator, shown at *Fig. B 394*, is a simple contrivance to prevent the speed from accumulating beyond a certain point to which the regulator may be adjusted.

## THRESHING-MACHINES.

*The Overshot Thresher with Separator Attachment*, represented by *Fig. 400*, threshes the grain, and separates the straw, and delivers it ready for stacking from the end of the separator, the grain and fine chaff falling through the openings upon the floor or ground under the same. The grain and chaff are often removed by

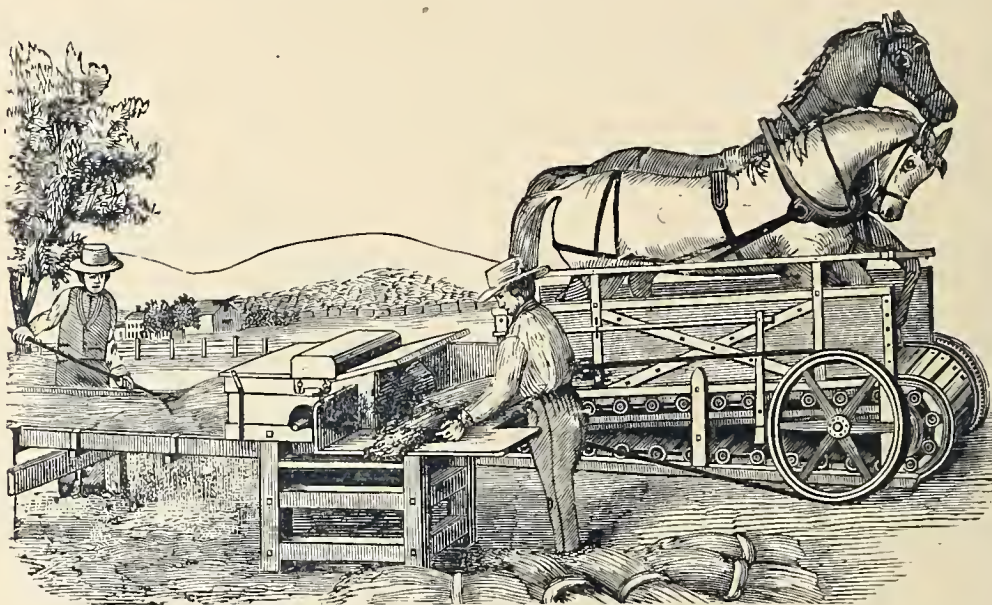


Fig. 400. — Thresher and Separator.

an attendant, to an ordinary fan-mill, and cleaned at the same time ; the fan-mill being driven by hand, or by a band from the horse-power.

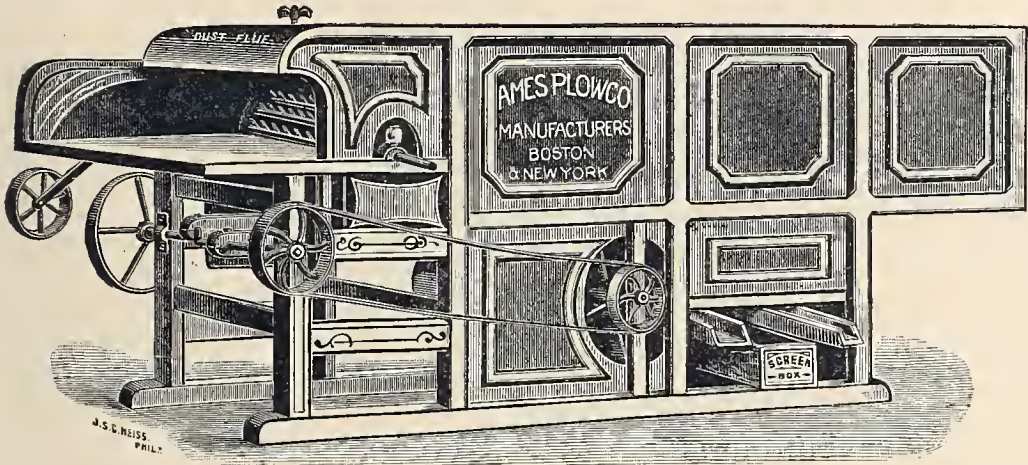
The separator is a large wooden riddle, about three feet wide and ten feet long, with a thin light-wood bottom perforated full of holes about one inch in diameter. When made for exportation, or very changeable climates, with extremes of heat, moisture, and dryness, perforated and corrugated sheet-iron is used for the separator bottom in place of wood. The separator is suspended about two feet from the floor by means of two straps or chains, at the corners next the thresher, to hooks for that purpose in the thresher, as seen in the illustration ; the other end being upon swing-legs which stand upon the floor, and connected to them by an iron rod running through them and the end of the separator.

The separator is driven by the same belt that drives the cylinder, the belt passing over a pulley on a cross-shaft under the feed-table, the shaft having a crank at centre connected with the separator by a pitman. The crank, shaft, and pulley are changeable to either side, to operate right or left handed.



*The Union Thresher and Cleaner*, Improved, is illustrated at *Fig. B 393*. It has a firm, solid frame, joint bolted, and there is no chance for the shafts and bearings to get out of line. The Improved Bar Cylinder is used, and the form of the feed tables and throat insures easy feeding.

The Coneave and the Sides are of Iron and very durable, and will not wear out by the action of the flying grain.



**Fig. B 393.—Union Thresher and Cleaner.**

The Dust Flue over the Cylinder conducts the dust away from the feeder and carries it out with the straw at the discharge end.

The Separator is wider than the Cylinder, and thus allows plenty of space for the straw to spread and prevent it elogging, and what grain is left in the straw after leaving the cylinder is thoroughly taken out by the vibrating separator and shaker forks, which continue to agitate the straw until it reaches the rear end of the separator.

A Beater is located back of the Cylinder, and as the grain and straw leave the cylinder it comes in contact with the revolving beater, which prevents throwing the grain out of the machine and thoroughly beats all the grain from the straw.

The Cleaner is made with a side shake the same as hand grain fans and there is no waste. The arrangement for shaking the shoe that contains the sieves can be changed to different motions to suit the condition of the grain, and the shake is steady and regular. There are very few "tailings" and no elevator is needed, and the power required to run it is saved.

There is no complication of parts in this machine, and it is arranged in such a manner as to reduce frietion to the lowest point.

We make these suitable for both two horse and three horse power. The two horse power machine has an 18x26 inch eylinder, and the machine for three horse power has an 18x30 inch cylinder.

One of our Two or Three Horse UNION RAILWAY HORSE POWERS and one of these UNION THRESHERS AND CLEANERS make the most complete threshing outfit anybody can put in.



*The Mounted Union Railway Horse Power and Union Thresher and Cleaner, are shown at Fig. B 394, and this constitutes a very complete portable*

rig, such as is in demand to travel about with and is greatly preferable to a steam outfit, as it removes the liability of setting fire to combustible matter and saves cost of insurance necessary where steam machinery is used. The machines, it will be noticed, REMAIN mounted while in operation the same as when on the road, and thus there is no heavy lifting or loss of time.

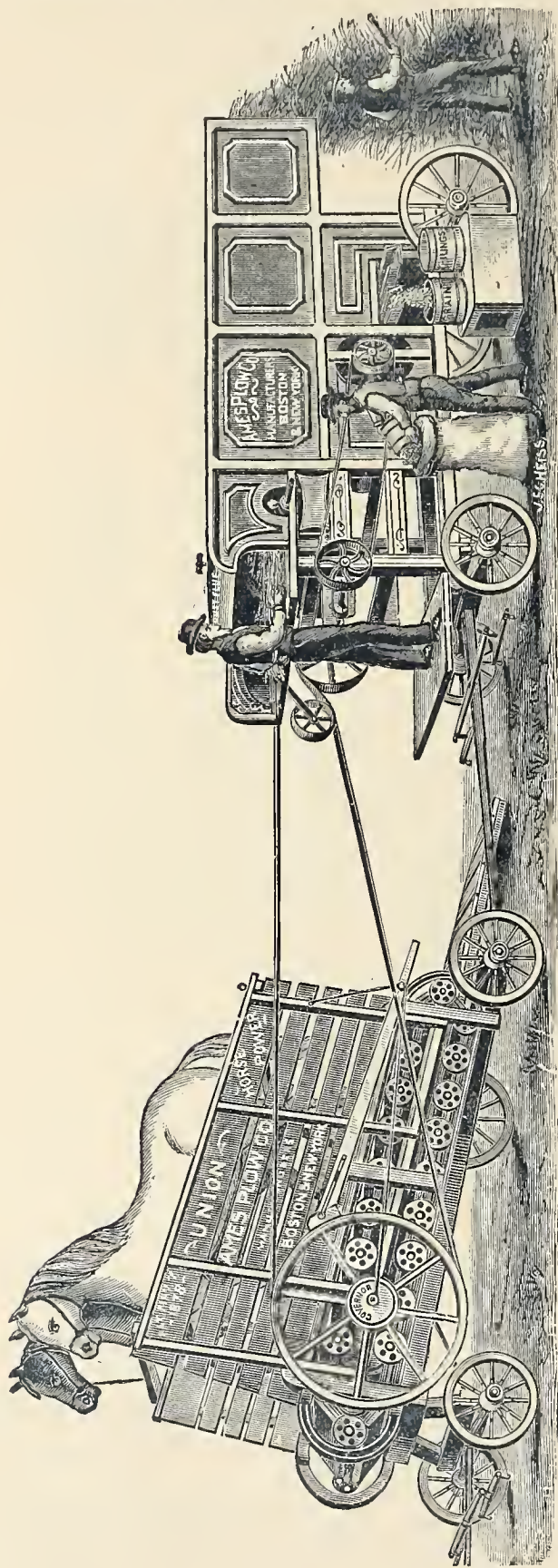
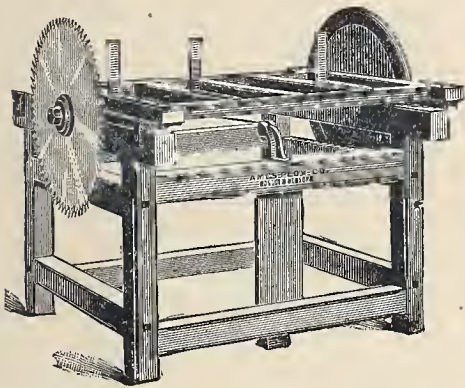


Fig. B 394.—Mounted Union Railway Horse Power and Union Thresher and Cleaner.

## SAW MACHINES AND WOOD-SPLITTER.

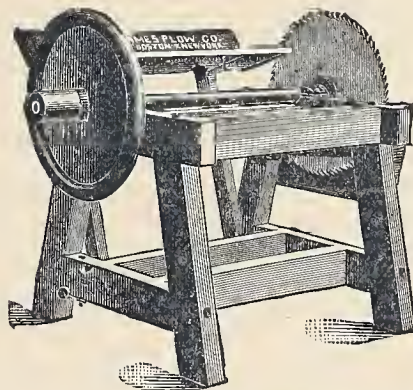
*The Sliding Table Portable Circular Saw Machine*, represented by *Fig. 398*, is made strong and heavy, with a joint bolted frame, metallic boxes and extra heavy long shaft. It may be run by one or two horse power. With one horse



**Fig. 398.**—Portable Circular Saw Machine with Sliding Table.

power ten to fifteen cords per day of hard wood can be cut twice by two men and as much soft wood as can be handled. The heavy fly wheel is of the solid web pattern. The Pulley has a safety Clutch. The Saw we furnish is 24 inches diameter, filed and set ready for use, and is encased below the shaft and also at back of the saw. The saw is furnished on Right Hand side of machine unless otherwise ordered. As made by us there is no danger from either saw or fly wheel.

**SPLITTING ATTACHMENT.** This attachment for the sliding Frame Saw Machines is for splitting boards for fencing and for general shop use. It consists of an extra table and a 14-inch Saw filed and set ready for use.



**Fig. B 392.**—Portable Circular Saw Machine with Rocking Table.

*The Rocking Table Portable Circular Saw Machine*, shown at *Fig. B 392*, is another form of machine for sawing wood and the same may be said of it in a general way as of the Sliding Frame. It also has the Heavy Web Fly Wheel, Clutch Pulley and Protected Saw, and the saw is put on the Right Hand Side unless otherwise ordered, and it is filed and set ready for use.



*Hildreth's Patent Wood-Splitter*, for splitting kindlings and fire-wood, is represented by *Fig. 399*. In preparing wood for fuel at the present day, the most improved machinery is required, to enable the dealer to offer the prepared wood at such prices as shall compete successfully in the market for patronage. The use of improved machinery is quite generally adopted for sawing wood, but there is still a large amount of wood split by hand.

HILDRETH'S PATENT WOOD-SPLITTING MACHINE is offered as the best wood-splitter ever introduced into the market. With this machine, hard, knotty rock-maple, oak, walnut, or pine can be readily and easily split. On this class of wood, sawed eight to eleven inch lengths, parties using it report ten to eighteen cords split per day on the double wood-splitter.

In splitting kindling-wood, the work is done very rapidly, making the finest kindlings or coarse stove-wood, at the will of the operator. A double splitter is capable of splitting eight to ten cords per day.

The splitters are made both single and double; a double machine giving twice the capacity of a single, and is furnished at but little extra cost. These machines are very strong, but are light compared with other ponderous and cumbersome machines for the same purpose. They are portable and very compact, occupying only about three feet square by some seven feet high.

The screw-tables are firm, and are easily adjusted for any length of wood. Our one-horse power will run a double splitter very easily, and parties often run both splitter and saw at same time with only one horse. These splitters are in successful operation in many wood-yards and wood-pulp mills.

The following are the various sizes made :—

Size A, Single, 300-pound balance pulley, 17-inch cut, screw table.											
"	B, Double,	"	"	"	"	"	"	"	"	"	"
"	C, Single,	500-pound	"	"	"	"	"	"	"	Extra heavy Star pattern.	
"	D, Double,	"	"	"	"	"	"	"	"	"	"
"	E,	"	"	"	24-inch	"	"	"	"	"	"
"	F,	"	"	"	50-inch	"	"	"	"	"	"

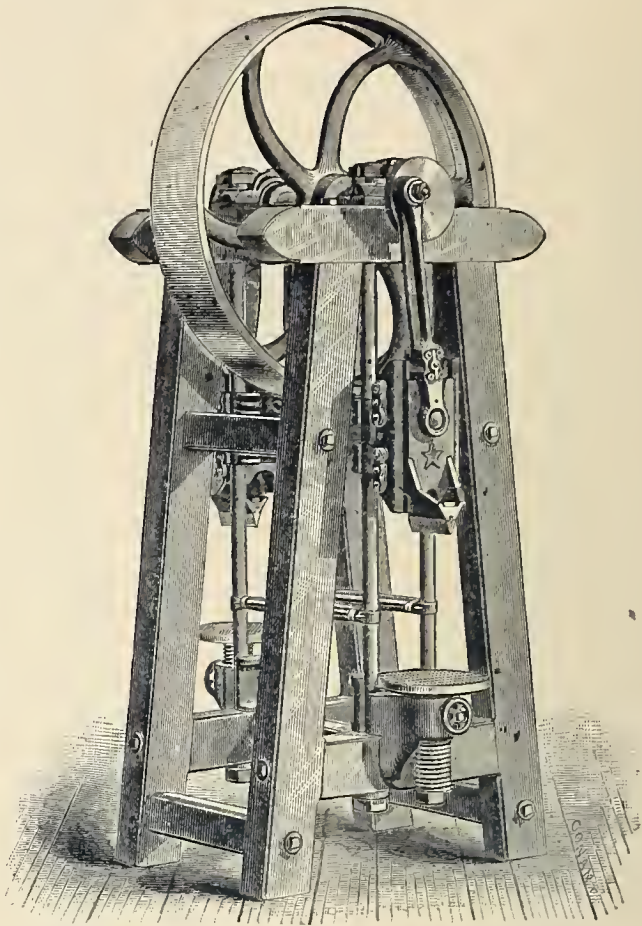
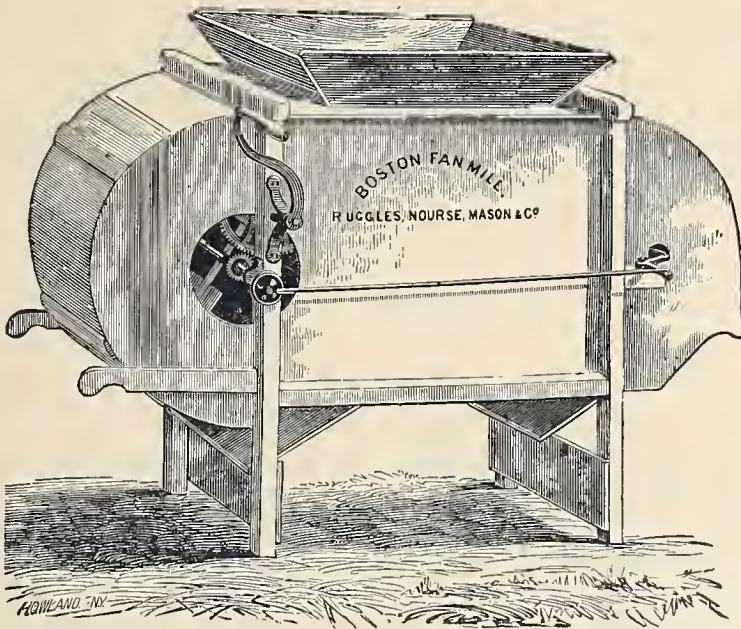


Fig. 399. — Hildreth's Patent Wood-Splitter.

## FAN-MILLS.

*The Boston Fan-Mill*, represented by **Fig. 401**, is cheap, light, and portable, but strong and durable, works with efficiency, cleaning grain and small seeds with much despatch at a single operation, and is well known in many markets. Six sizes are made, the smaller sizes being well adapted to the wants of New-England farmers.



**Fig. 401.**— Boston Fan-Mill.

*The Improved Worcester Fan-Mill* is of similar construction to the Boston, except that the frame for the sieves to rest on is wider, and the slides are attached to the sides of the mill, which are divided so that a portion moves, thus giving a greater surface, and consequently larger capacity, for the same size.

*The Grant Fan-Mill*, represented by **Fig. 402**, is believed to be the most effective for perfectly cleaning every kind of grain, rice, grass, and other seeds and substances, at one operation. It is made in the most substantial manner of the best material, eight sieves accompanying each mill for the cleaning of different seeds. Eight sizes of these mills are made, and larger sizes for warehouse and other purposes when required.

For separating oats from wheat, a cluster-sieve is made for attaching to these mills, which performs the work perfectly and with despatch.

Our fan-mills for foreign markets are made with sheet-iron round-houses.



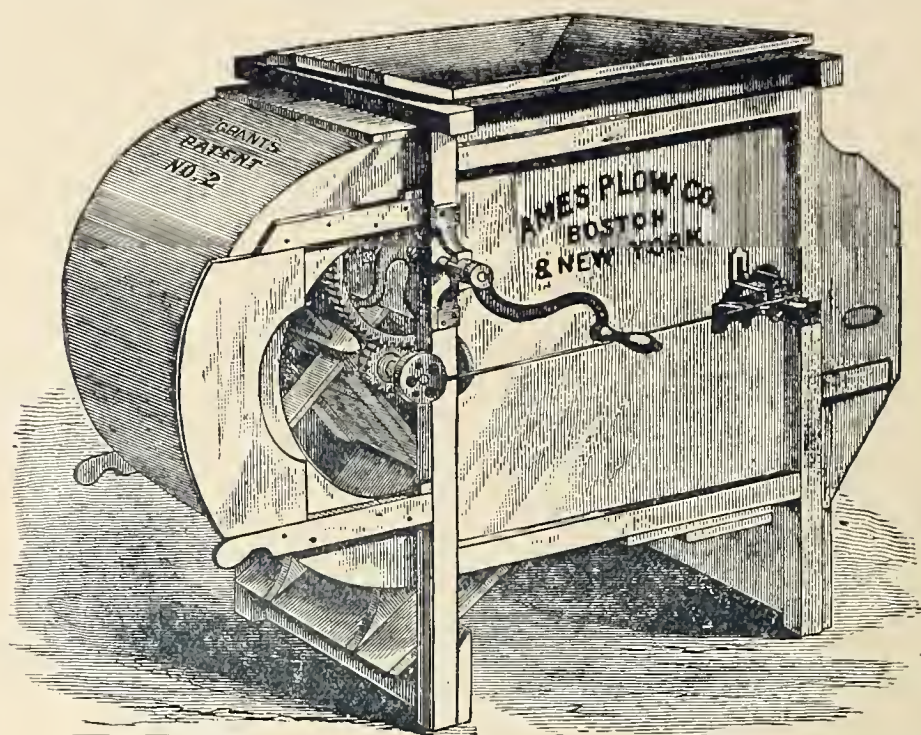


Fig. 402. — Grant Fan-Mill.

*The Grant Coffee Fan-Mill*, represented by *Fig. 403*, is made on same principle as the GRANT MILL already described, but with additional arrangements for

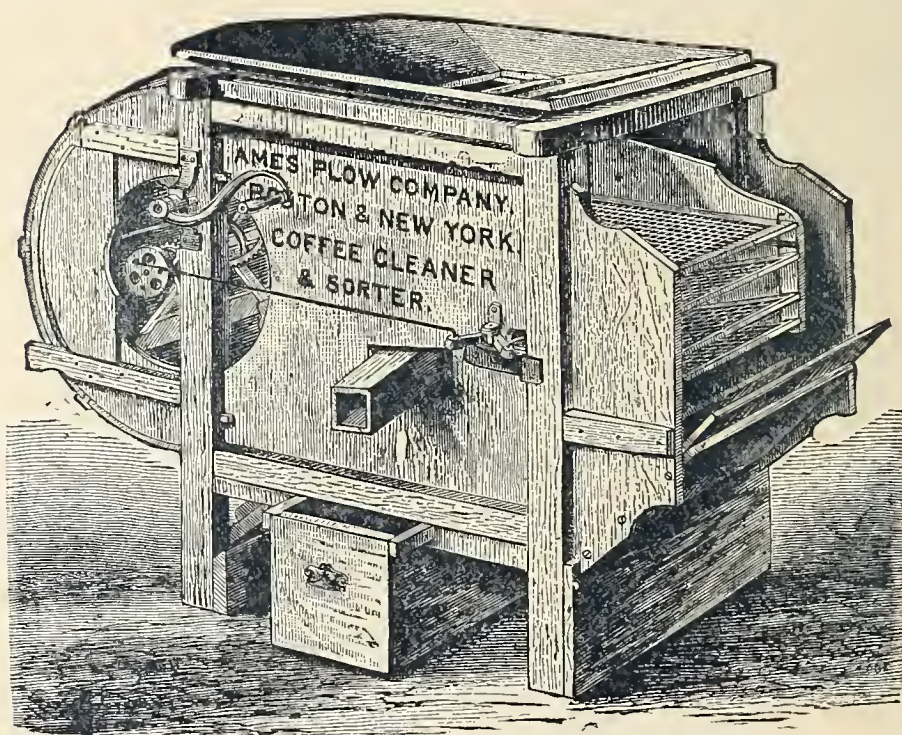


Fig. 403. — Grant Coffee Fan-Mill.

sorting. The coffee-beans, being thrown into the hopper, after passing through the requisite cleaning process, are distributed by three outlets into as many distinct grades of sizes.



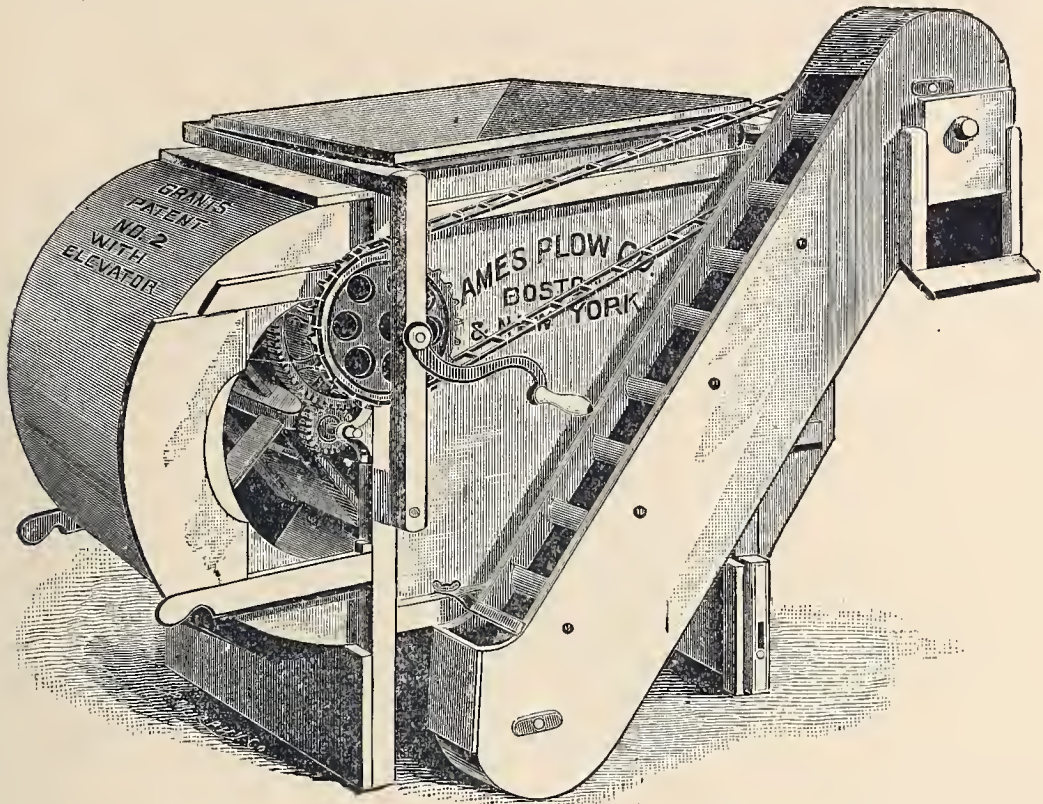


Fig. B. 425.—Fan Mill with Bagging Elevator.

*The Bagging Elevator for Fan-Mills* is shown in the illustration at *Fig. B 425*. This attachment we can rig to any of our Grain Fans and it conveys the seed up from the bottom of the Mill and drops it into the bag or sack held under the outlet at top of elevator. It is a very convenient attachment.



## CORN-SHELLERS.

*The Yankee Corn-Sheller*, represented by *Fig. 404*, is a small size, more especially adapted to small corn, but can be adjusted for larger varieties. It is extensively used in New England.



Fig. 404.—Yankee Corn-Sheller.

These Shellers are sometimes made with an attachment for separating the cobs from the corn.



Fig. 405.—Boston Corn-Sheller.

*The Boston Corn-Sheller*, represented by *Fig. 405*, is a size larger, and adapted to larger corn. It is made either with one or two hoppers.

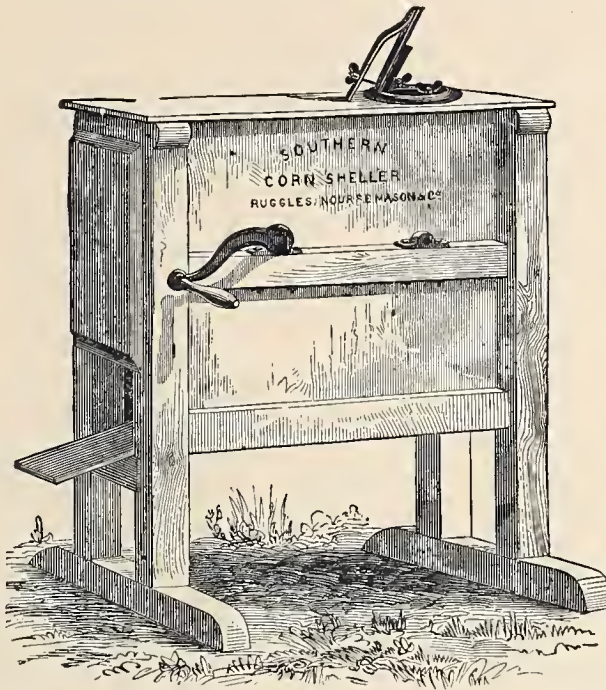


Fig. 406. — Southern Corn-Sheller.

*The Southern Corn-Sheller*, represented by *Fig. 406*, is made expressly for large farms and plantations where the corn is large in the ear. As with the Boston *SHELLER*, it is made either with one or two hoppers.

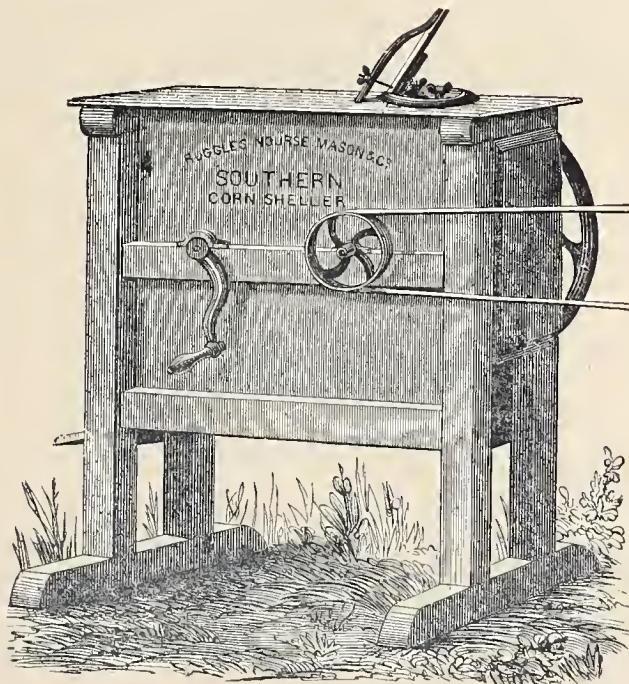


Fig. 407. — Southern Corn-Sheller with Pulley and Outside Balance-Wheel.

*The Western Corn-Sheller*, the largest of this class, is very capacious, and is made especially for large corn. It is also made either with one or two hoppers.



*The Pulley and Outside Balance-Wheel for Corn-Shellers* are shown in *Fig. 407*. The balance-wheel on the outside gives additional power, and contributes to the ease of operating the Sheller. This attachment is sometimes furnished with the YANKEE, BOSTON, and SOUTHERN SHELLERS. The pulley is sometimes furnished with the BOSTON and SOUTHERN SHELLERS, and is useful to those having band-power. When the pulley is furnished, a crank is also supplied, thus adapting the Sheller for use, either by hand or band power. The WESTERN SHELLER is always supplied with outside balance-wheel, pulley, and crank.

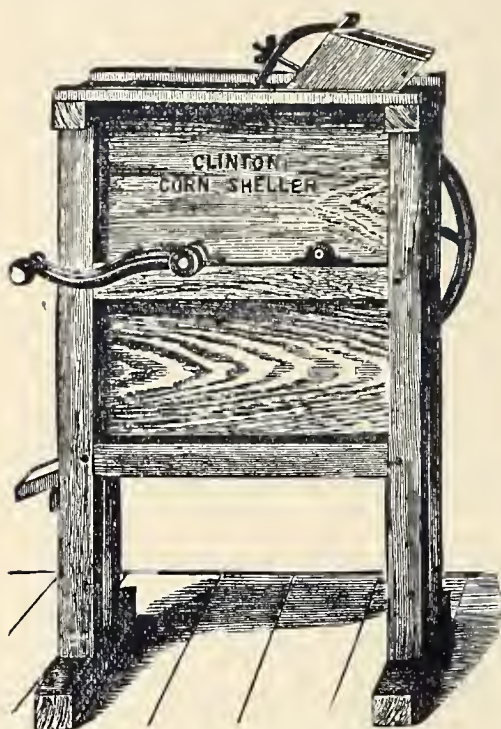


Fig. 409. — Clinton Corn-Sheller.

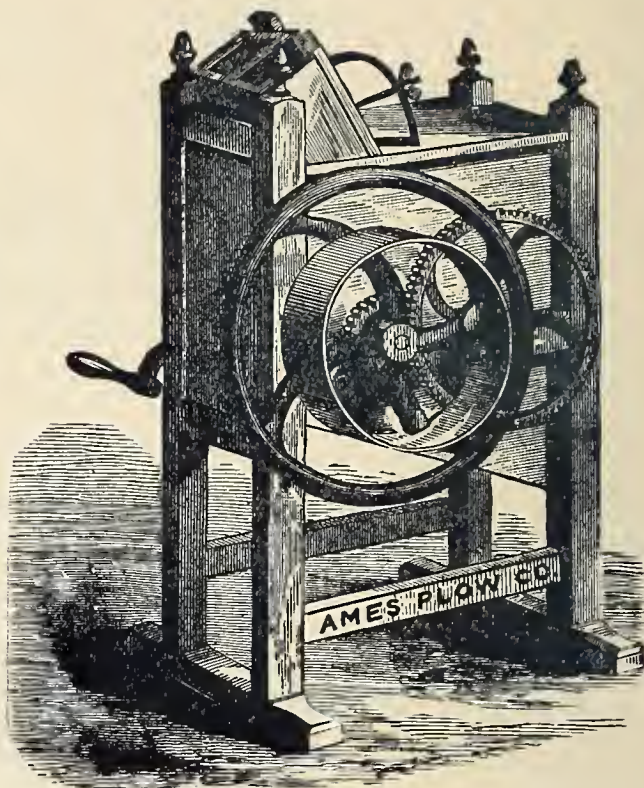


Fig. 410. — Eagle Corn-Sheller.

*The Clinton Corn-Sheller*, represented by *Fig. 409*, is used for shelling the small and medium sized varieties of Indian corn. It is made with either one or two hoppers. The Single-hopper Sheller is furnished either with one or two outside balance-wheels; the Double-hopper Sheller always with two outside balance-wheels. By the use of two wheels, the Sheller runs more steadily, and with greater ease to the workman.

*The Eagle Corn-Sheller*, represented by *Fig. 410*, is made in same style as the CLINTON, but with much heavier frame and irons, and otherwise materially better. It is made with either one or two hoppers, the former to be worked by hand, and the latter by hand or band power. The extra weight adds much to its durability and the ease of operating it.

*The D. L. Corn-Sheller*, represented by *Fig. 411*, is similar in its working-parts to the CLINTON, but is made with removable legs. The same variety of kinds are made as of the CLINTON SHELLER.



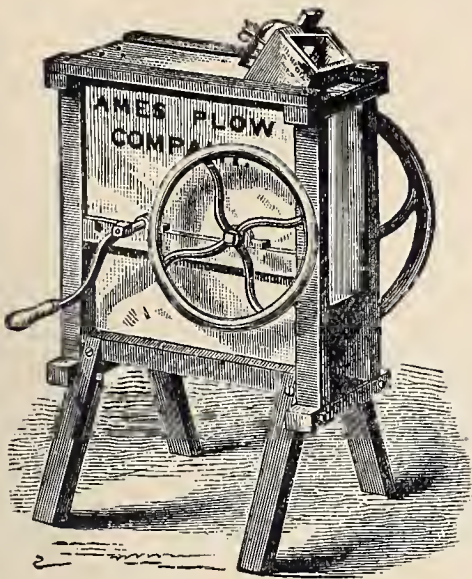


Fig. 411. — D. L. Corn-Sheller.

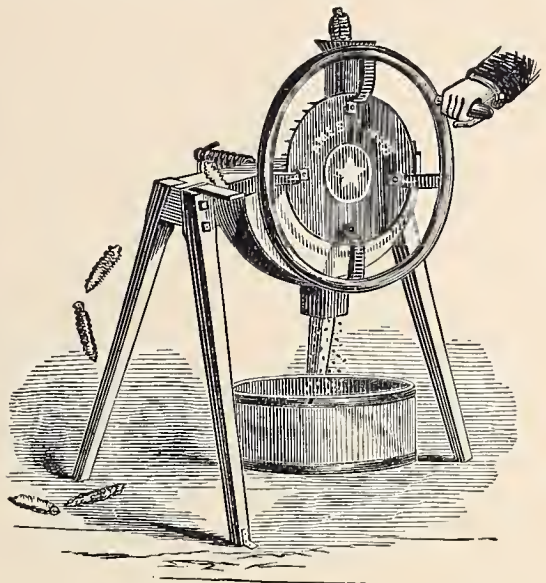


Fig. 412. — Prairie Corn-Sheller.

*The Prairie Corn-Sheller*, represented by *Fig. 412*, is a cheap machine for this purpose, and is much liked in some markets. It is adapted to shelling all varieties of corn.

*The Virginia Corn-Sheller*, represented by *Fig. 408*, has been in use many

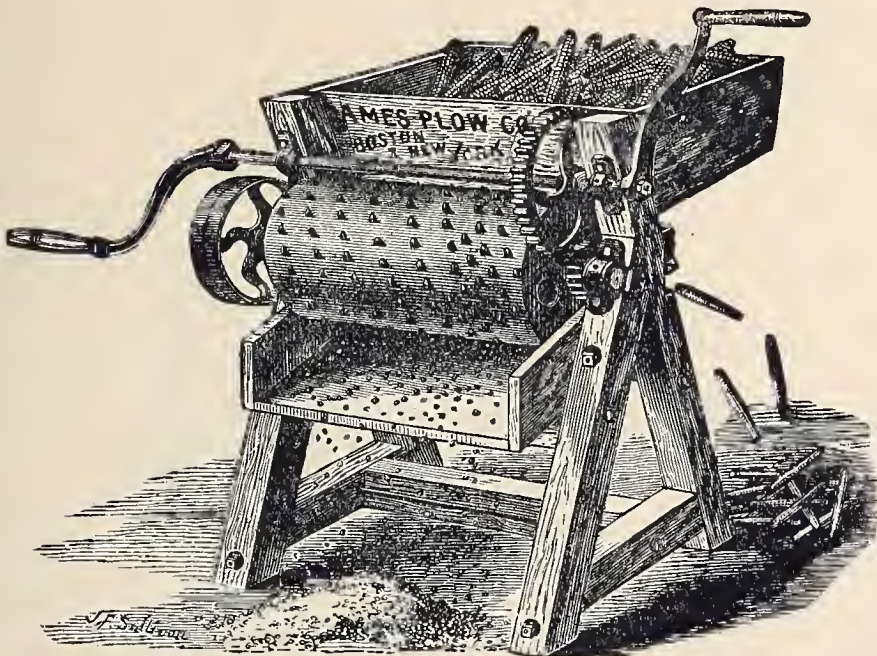


Fig. 408. — Virginia Corn-Sheller.

years in the Southern States and foreign countries: it may be worked by one or two men, or by power, shelling by hand about three hundred bushels per day, and by power about six hundred.



## GRINDING MILLS AND GRATERS.

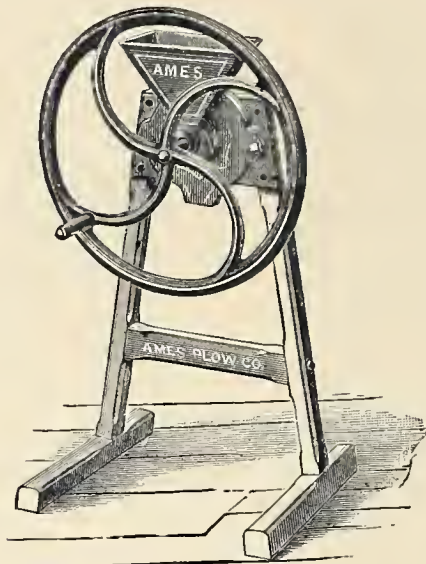


Fig. 413. — Hand Corn-Mill.

*The Hand Corn-Mill*, represented by *Fig. 413*, for grinding grain, coffee, spices, etc., is made in three sizes, operating by hand, and grinding from one to two bushels per hour. Large numbers of these mills are sold.

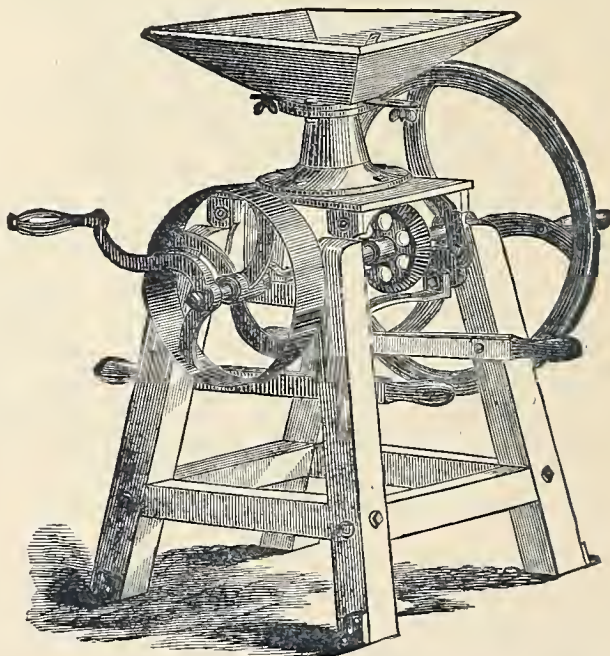


Fig. 414. — Horse and Hand Grain-Mill.

*The Horse and Hand Grain-Mill*, represented by *Fig. 414*, is made of iron,

except the frame and hopper, and can be run either by hand or horse power: by the latter, it will grind four bushels of grain fine per hour, and a greater quantity if coarse. It is of simple construction, very efficient and durable, and not liable to need repairs.

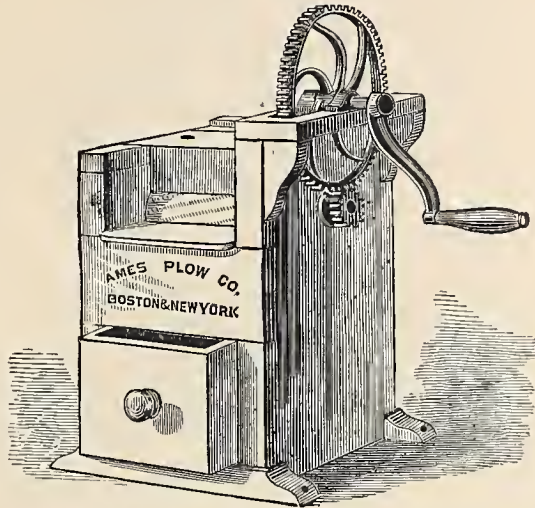


Fig. 474. — Horse-Radish Grater.

*The Horse-Radish Grater* is represented by *Fig. 474*. This is a very useful apparatus for grating horse-radish and similar substances. It is made with steel pins in the cylinder, as illustrated, or with cylinder clad with punctured tin.

*The Cocoa-Nut Grater* is very similar in construction to the STEEL-PIN CYLINDER HORSE-RADISH GRATER, but is arranged for finer work.

*The Horse Radish Grater and Cocoa-Nut Grater*, arranged for Foot Power, is illustrated at *Fig. B 486*. It will be noted that with these there is a balance wheel furnished which gives additional power and steadiness in running. There is also a crank sent with each so they can be operated by hand when desired.

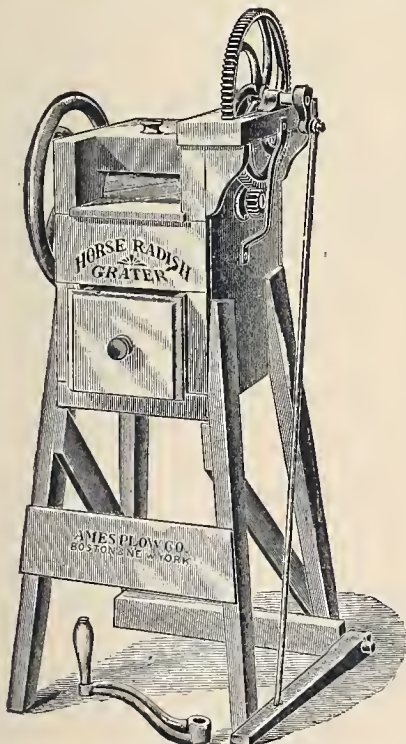


Fig. B 486.—Grater for Foot Power.



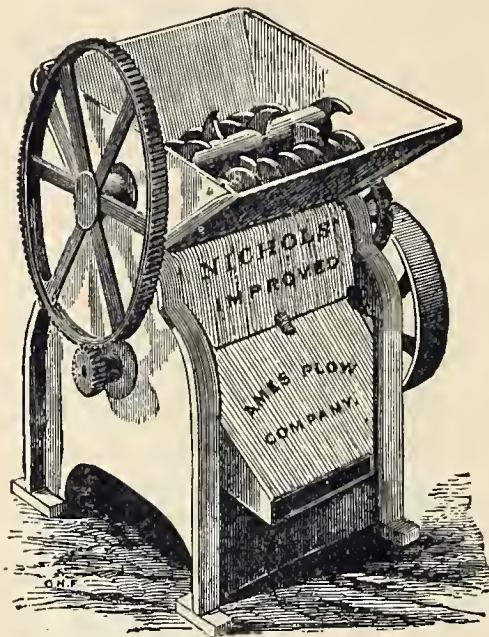


Fig. 415.—Nichols' Corn and Cob Crusher.

*The Nichols Corn and Cob Crusher and Pulverizer*, for corn-cobs, bark, oil-cake, etc., represented by *Fig. 415*, has proved to be far superior to any other mill made for the purpose, and has gained a wide reputation. The quality and quantity of work done, combined with the ease of operation, recommends it to all; and it stands to-day without a rival for rapidity and perfection of work, and durability of working-parts.

The mill is extremely compact, and, being arranged with pulley, is adapted to all kinds of power. A one-horse power is sufficient to operate it; but, to accomplish its full working capacity, the cylinder should perform six hundred revolutions per minute.

It is regulated to grind coarse or fine, by a set-screw over the front coneave. It has been generally adopted for mill-use wherever it has become known; and for farmers who have power, no better mill is made.

## SUGAR-MILLS.

*The Box Sugar-Mill*, represented by *Fig. 416*, is used by grocers for crushing sugar as it is taken from the hogshead. The dampness of the bottom and sides is thus equalized, and the appearance of the sugar thereby improved. It is simple, and easily kept in order, and will crush from six to twelve hogsheads per day. Four sizes are made.

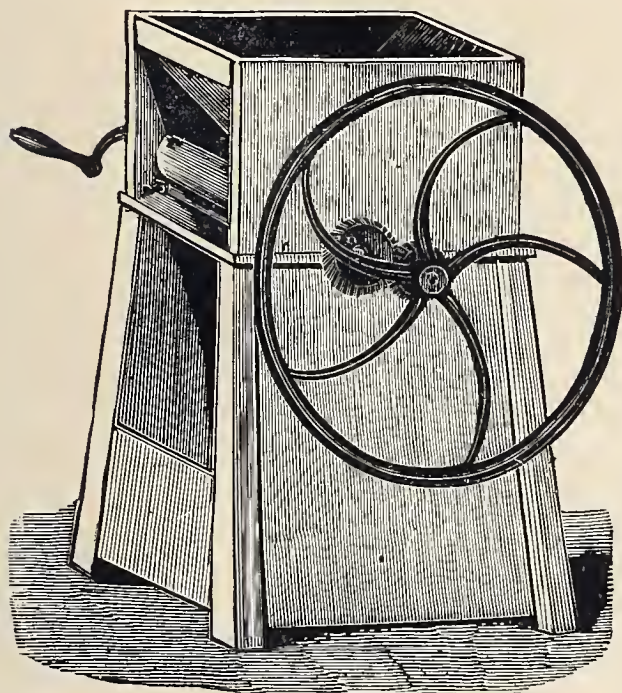


Fig. 416. — Box Sugar-Mill.

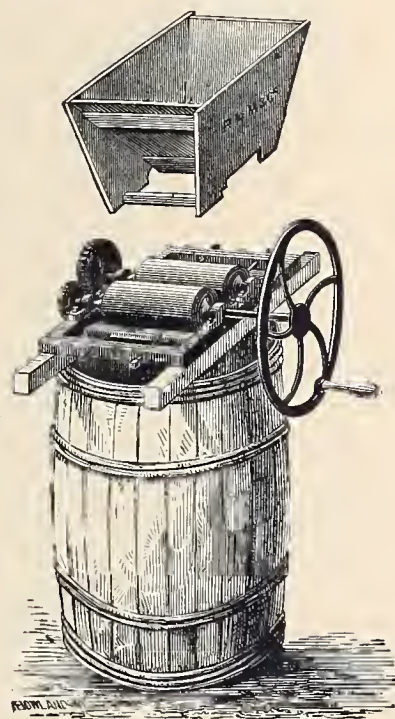


Fig. 417. — Barrel Sugar-Mill.

*The Barrel Sugar-Mill*, represented by *Fig. 417*, is intended to be placed over a barrel, saving the room occupied by the Box MILL. It answers the same purpose, the capacity being less in proportion to size.



## CIDER MILLS, WINE AND LARD PRESSES, ETC.

*The National Farmers' Cider and Wine Mills*, represented by *Figs. 418* and *B 423*, are constructed upon new principles out from the beaten track of previous inventions, avoiding the defects existing in all other mills for the purpose.

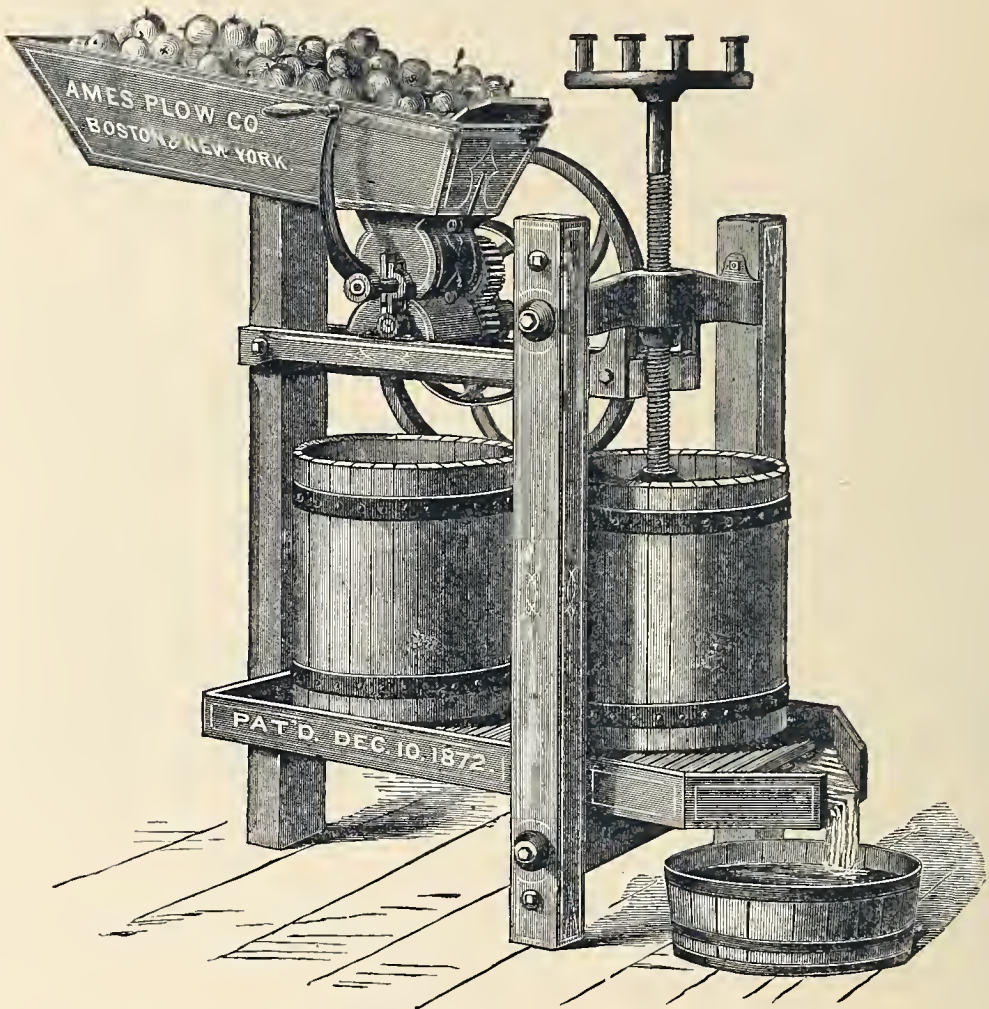


Fig. 418.—National Farmers' Cider-Mill, Plain Screw.

The peculiar construction and arrangement of the rollers is such that the best qualities of both crushing and grating mills are combined.

The grinding arrangement is very simple, consisting of two rollers, which work together in such a manner that the cells of the fruit are broken, and a fine pomace produced; and from this pomace, under the pressure of the screw, a larger percentage of juice is obtained, making more cider from a given quantity of apples than can be made with any other mill now in use.

This feature should not be overlooked, as the saving of cider by the use of these mills will soon pay the cost. The arrangement is such that the rollers can be set for either coarse or fine work; and they are the best mills in use adapted for crushing grapes, berries, and other fruit before pressing.

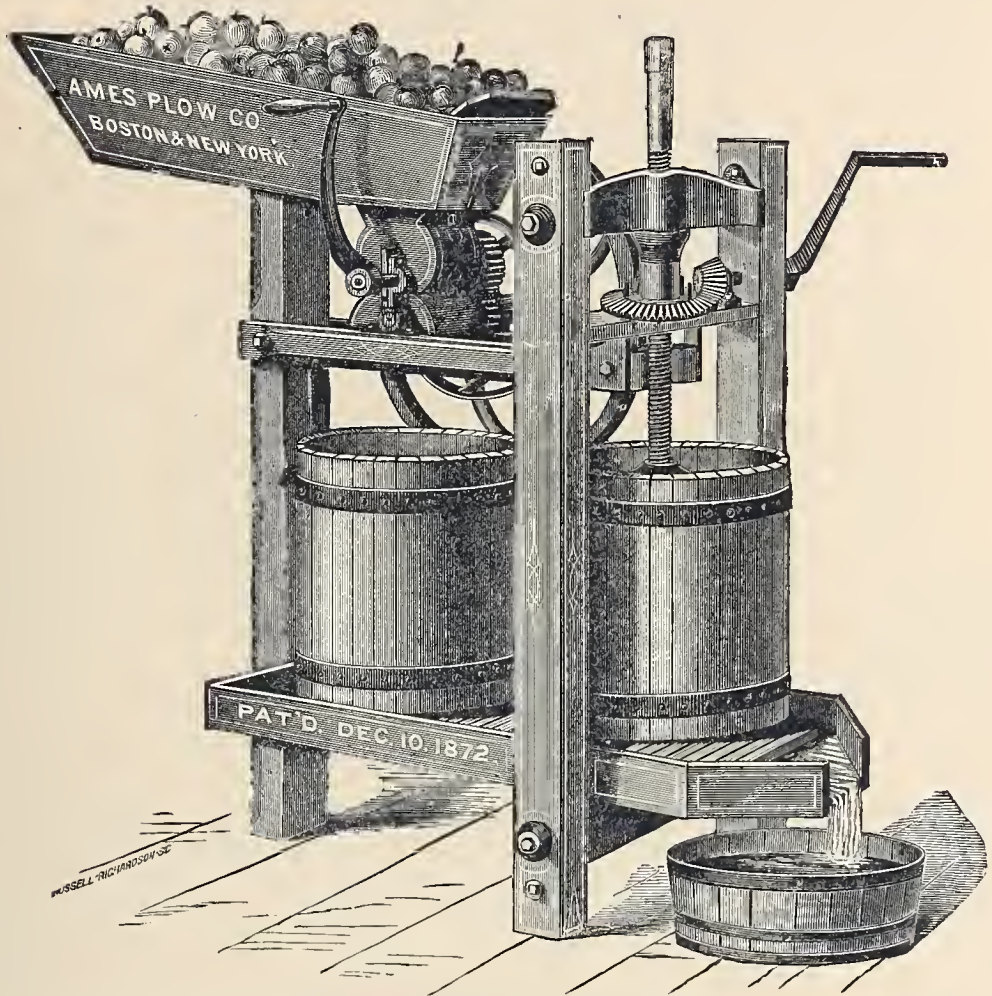


Fig. B 423. — National Farmers' Cider Mill, Geared Screw.

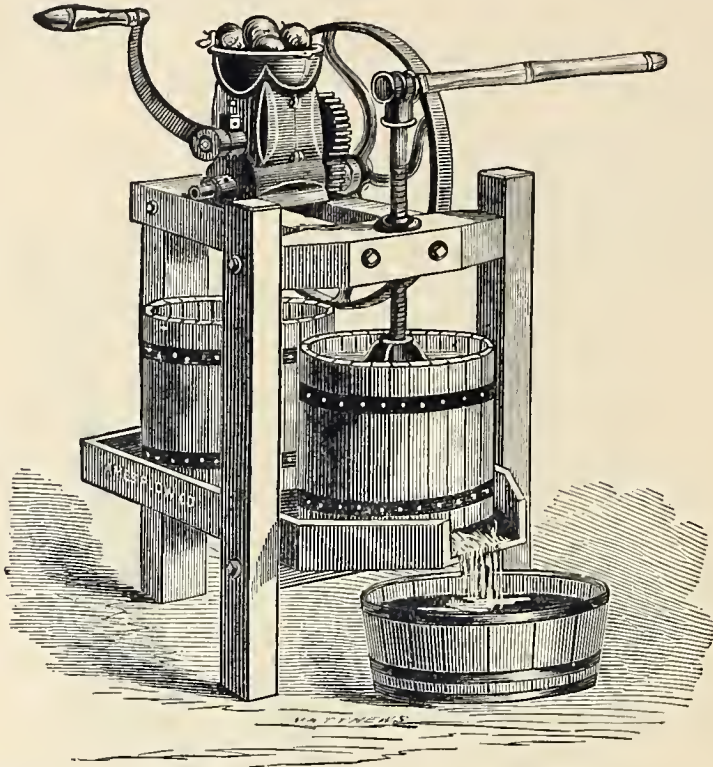
They are contained within a strong, compact frame, and have two curbs, requiring no handling of the pomace and crushed fruit. The arrangement of the two curbs, enabling both grinding and pressing to be done at the same time, greatly facilitates the work, increases the capacity of the Mills, and allows more time for the juice to drain from the contents of the curb.

These Mills are intended for those who make cider in quantities requiring capacity of six to eight barrels per day. They are very strong and durable and need but little power to operate them. A pulley for operating by light band power where desired is furnished with each mill.

The FARMERS' MILLS are made with Plain Screw, *Fig. 418*, and Geared Screw, *Fig. 423*. By the use of the Geared Screw more pressure is brought to bear on the contents of the curb and this is of course a great advantage, and the extra cost of mills rigged in this way is comparatively small.



*The National Family Cider-Mill*, represented by *Fig. 419*, as its name indi-



**Fig. 419.—National Family Cider-Mill, Two Curbs.**

cates, is specially adapted for family use, is light, strong, and convenient, and easily operated, same in principle and operation as the FARMERS', only of smaller size, and is sold at a price that justifies its purchase by any one wishing to make cider or wine. The arrangement of the two curbs, enabling both grinding and pressing to be done at the same time, greatly facilitates the work, increases the capacity of the mill, and allows more time for the juice to drain from the contents of the curb.

*The One-Curb National Family Cider-Mill* is a convenient little mill. The same grinder and screw are used as in the two-curb mill, but only one curb.

*The National Family Apple-Grinder* is the grinding apparatus used in the FAMILY CIDER-MILL, *Fig. 419*, mounted on a frame. When parties have a press, it is quite convenient for use in connection with same.

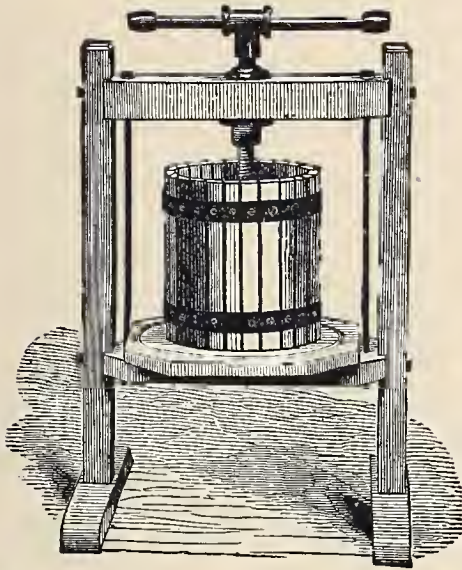


Fig. 420. — Lard, Cider, or Wine Press, Nos. 1 and 2.

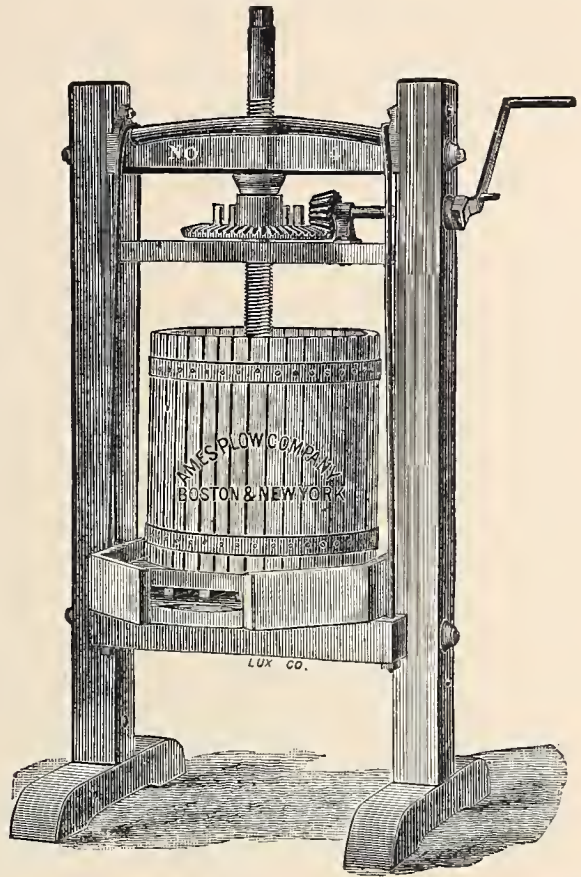


Fig. 421. — Lard, Cider, or Wine Press, No. 4, Geared.

*The Lard, Cider, and Wine Press* is made in six sizes. The Nos. 1 and 2, shown by *Fig. 420*, and the No. 3, are light and portable, yet strong, and well adapted for general use. The Nos. 4 and 5 are much heavier and stronger, and are suited to the wants of large producers. *Fig. 421* shows the No. 4 size with geared serew, by means of which more pressure is obtainable. This size is also made with plain serew. The No. 5 press is always furnished with geared serew.

The curbs for these presses are made either with welded or hinged hoops.

*The Mandioca Press* is quite similar to the wine-presses just described, and is made of same sizes, but specially adapted for this kind of work.

*The Apple-Barrel Header*, represented by *Fig. 422*, is a very useful contrivance for heading barrels; and no producer should be without one. We make them either with wood or improved wrought-iron

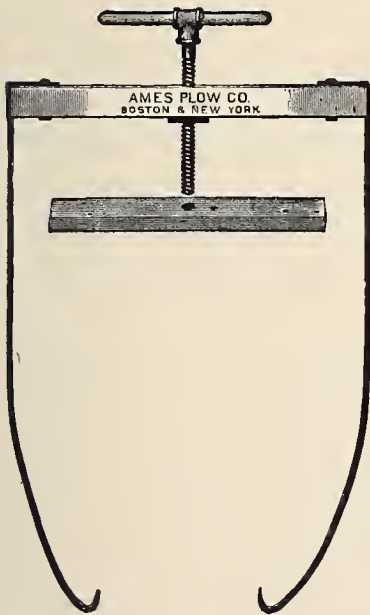


Fig. 422. — Barrel-Header.

screws. The improved wrought-iron screw is the kind illustrated.



## HAY, FEED, AND ENSILAGE CUTTERS.

So great is the utility of cut food for live-stock, that machines for this purpose are now in general use. The advantages are, that a less amount of forage will sustain an animal; that there is less waste of material, and that it is better than in a crude state, particularly for animals of labor, as it is sooner eaten, giving more time for rest.

The following are the most approved kinds:—

**The New Doctor Bailey Cutter**, for dry forage and ensilage, is represented by *Fig. 435* (ten inch) and *Fig. 436* (sixteen inch). It is vastly superior to any cutter in the market, not only for cutting ensilage crops, but also for hay and other

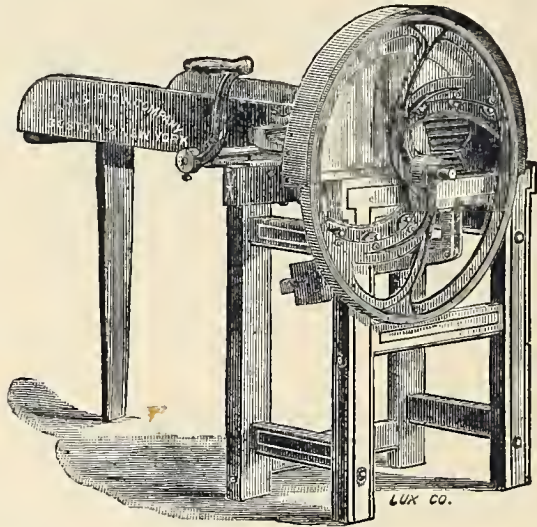


Fig. 435.—Doctor Bailey Ensilage-Cutter, 10 Inch.

dry forage, having many advantages possessed by no other machine or cutter. Greater capacity than any other using the same power, strength, simplicity, durability, and rapidity of work are among the qualifications. It is giving entire satisfaction, and the ever increasing demand shows great popularity.

We manufacture six sizes, as follows:—

- 9-inch.**—For hand use; a new size, made on same principle as larger sizes; cuts rapidly and runs easily, strong and durable; will cut all kinds of fodder, from hay to corn stalks. One man can easily operate it. Cuts three lengths,  $\frac{1}{2}$ , 1 and  $1\frac{1}{2}$  inches; weight, 200 lbs.
- 10-inch.**—For hand use; this *favorite* (see illustration *Fig. 435*) is as easy to operate as the 9-inch. One man can cut a large amount of fodder in a very short time; much used in large city stables as well as by farmers; can be arranged for operation by light power. Cuts four lengths,  $\frac{3}{8}$ , 1,  $1\frac{1}{2}$  and  $2\frac{3}{8}$  inches; weight 250 lbs.
- 12-inch.**—The best cutter in the market for operation by one horse-power, or by hand by one or two men. A very convenient size for farmers. Will cut all kinds of dry fodder and ensilage crops; especially recommended to those just starting or experimenting on ensilage, and to those having small silos. Cuts ten lengths,  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $\frac{7}{8}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$  and  $1\frac{3}{4}$ , 2 and  $2\frac{3}{8}$  inches; weight, 475 lbs. Capacity, 3,000 pounds of dry fodder per hour; three to four tons green fodder per hour.

**14-inch.**—This is our one horse-power size, built extra heavy in every respect, strong enough for two horse-power or steam. A growing favorite for ensilage, and unsurpassed for all kinds of crops, green or dry. Cuts ten lengths,  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $\frac{7}{8}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ ,  $1\frac{3}{4}$ , 2 and  $2\frac{3}{4}$  inches; weight, 650 lbs. Capacity, five tons of green fodder,  $\frac{3}{8}$  inch long, per hour.

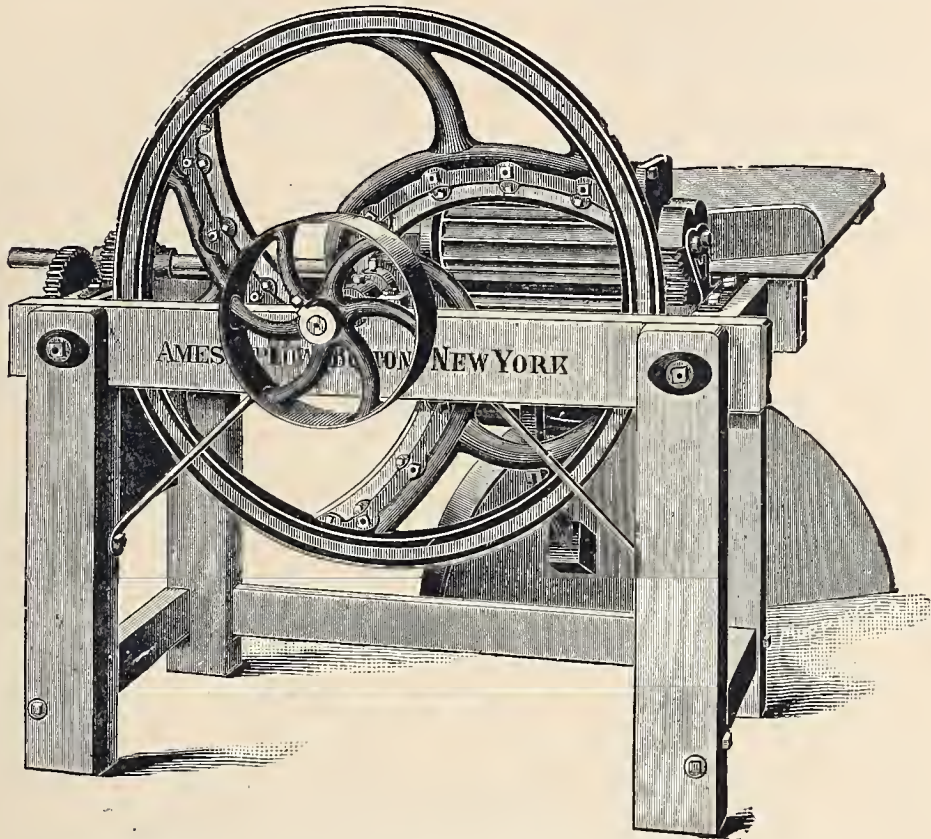


Fig. 436. — Doctor Bailey Ensilage-Cutter, 16 Inch.

**16-inch.**—This is the most salable size for ensilage; also gives perfect satisfaction on all kinds of dry fodder (see illustration *Fig. 436*). It has great capacity, and comparatively the power required is very small; can be successfully operated by two horse-power. This size is built even stronger than the 14-inch. Cuts ten lengths,  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $\frac{7}{8}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ ,  $1\frac{3}{4}$ , 2 and  $2\frac{3}{4}$  inches; weight, 750 lbs. Capacity, six to seven tons of green fodder,  $\frac{3}{8}$  inch long, per hour.

**20-inch.**—This is our largest size; has almost unlimited capacity. The same may be said of it as of the 16-inch. It is larger and has greater capacity, and requires two to four horse-power. Cuts ten lengths,  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $\frac{7}{8}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ ,  $1\frac{3}{4}$ , 2 and  $2\frac{3}{4}$  inches; weight, 900 lbs. Capacity, eight tons of green fodder,  $\frac{3}{8}$  inch long, per hour.

**NOTE.**—It is of course understood that the longer the fodder is cut the greater the capacity.

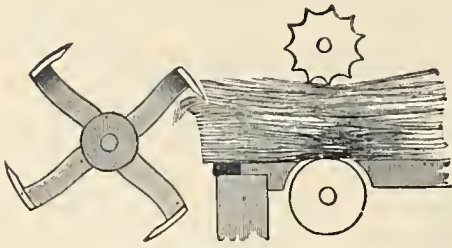
Our claims for capacity are based upon careful tests, and the many testimonials we have received amply sustain our assertions, many naming quantities far in excess of anything before known in the whole history of the cutter business; but claims are all in moderation.

The **12, 14, 16** and **20-inch** machines are all furnished with two cranks for hand use, in this way saving the purchase of a second machine for cutting by hand. The largest machines can be readily operated by one or two men, and this fact alone shows that the machines require very little power to operate them in comparison with their great capacity.

THE NEW BAILEY CUTTERS work with a drawing and shearing cut, the knives coming down across the opening, through which the forage is fed, at the angle adopted by all first-class mowing and reaping machine manufacturers, and which has been found, after years of experience, to be the best.

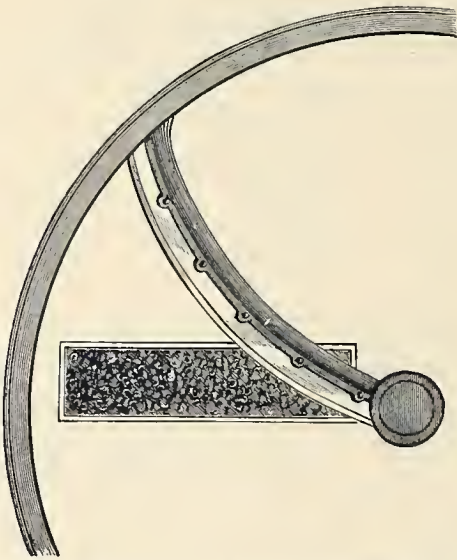


In all cylinder machines, a great amount of power is lost by the knives striking INTO the mass of forage, without the advantage of a DRAWING CUT, each stroke of the knives crowding the forage back upon the powerful feed rollers, which are at the same time pressing the mass forward. This waste of power can be prevented in cylinder machines, in part only, by making the feed rollers and knives long, so as to feed a very thin layer of forage. This disadvantage is shown by *Fig. 437*.

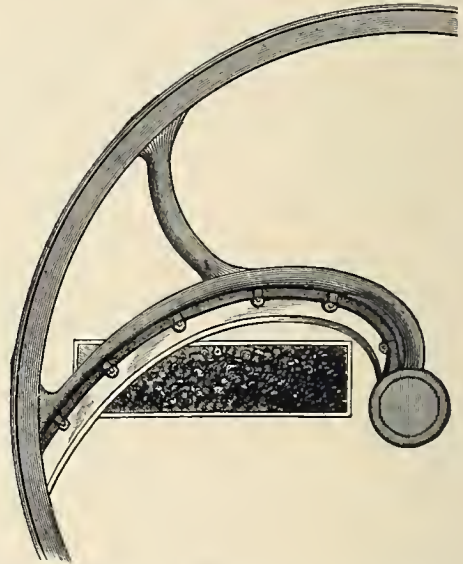


**Fig. 437.—Disadvantageous Operation of Cylinder-Cutters.**

*Figs. 438 and 439* show the difference in cutting between other machines, with knives turned backward or convex, where the forage is bodily pushed away from the power, and the heaviest cutting done at the outer end of the knives, and the DOCTOR BAILEY ENSILAGE CUTTERS, with knives running forward or concave, thereby cutting that portion of the forage furthest from the power first, gradually shearing along the bed, or stationary knife, the peculiar form of the knives hardly disturbing the lay of the forage



**Fig. 438.—Disadvantageous manner in which ordinary Convex-Knife Cutters operate.**



**Fig. 439.—Manner in which the Doctor Bailey Ensilage-Cutter operates.**

*a particle, and then doing the heaviest cutting in towards the centre of the wheel, where the power is the greatest.*

It is at once seen, that, with convex knives, the hardest cut is at the outer end of the knives, where the power is the least; while with the DOCTOR BAILEY CUTTER, the hardest cut comes on the inner end of the feed-box nearest the centre of the wheel, where the power is immensely increased.

The KNIVES are so arranged that they can be readily taken off and sharpened, being easily adjusted to the true position on the machine. The quantity of feed can be regulated and the length of cut can be altered, without a moment's delay, by changing a single gear.

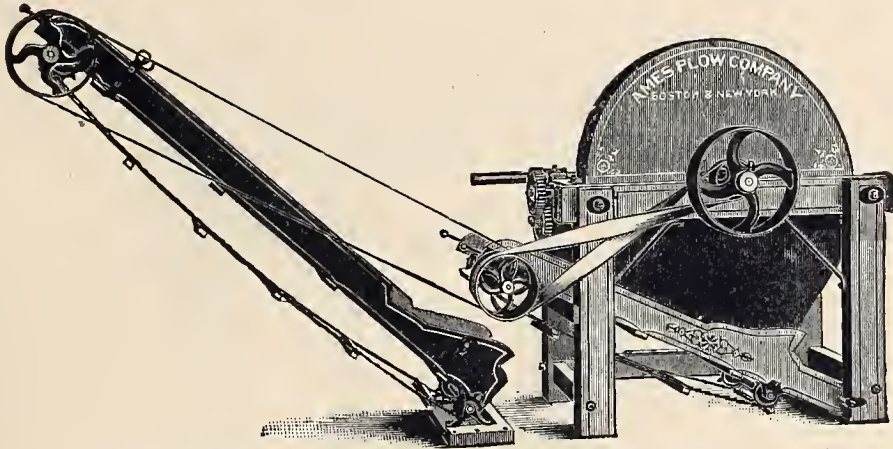


Fig. B 434.—Dr. Bailey Cutter with Elevator.

*Elevators, or Carriers, for the Dr. Bailey Cutter*, shown attached to Cutter at *Fig. B 434*, can be used in connection with any of the sizes from 12 to 20 inch. These Elevators carry away the cut-fodder and deliver it in the Silo or other receptacle without handling after it is fed to the cutter. The Base Elevator delivers it to the Upright Elevator which runs at an angle of 45 degrees, so that the length of Upright Elevator required is 50 per cent. added to height in the perpendicular of point to be reached. The Upright Elevator may be run straight out from the side of machine, as illustrated, or it may be turned at right angles to the front, or at right angles to the rear as desired.

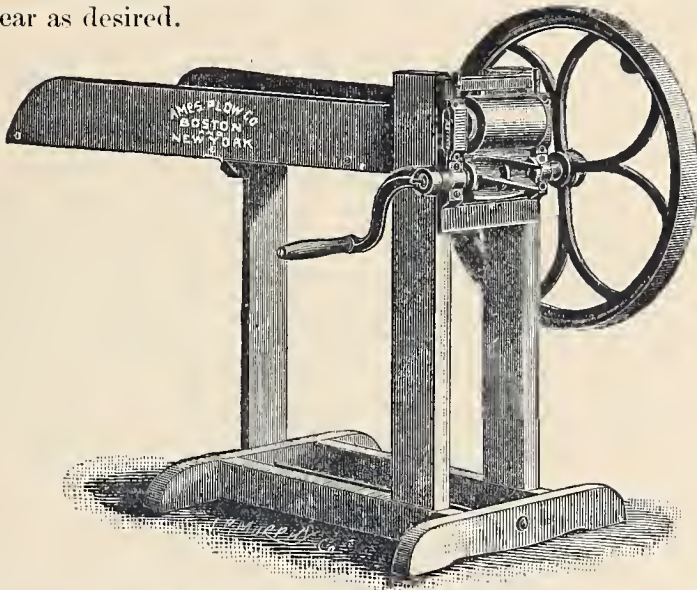


Fig. 440.—Hide Roller Hay-Cutter, with Spiral Knives.

*The Hide Roller Hay-Cutter, with Spiral Knives*, is represented by *Fig. 440*. The knives are set in the circumference of a cylinder, or arbor, and cut against a hide roller. This cutter has been in use for many years, and has given general satisfaction. There are various sizes.

*The Hide Roller Hay-Cutter, with Straight Knives*, is also made of various sizes, the largest to be run by power. This cutter is similar to the SPIRAL-KNIFE CUTTER, but is not now in such general demand.



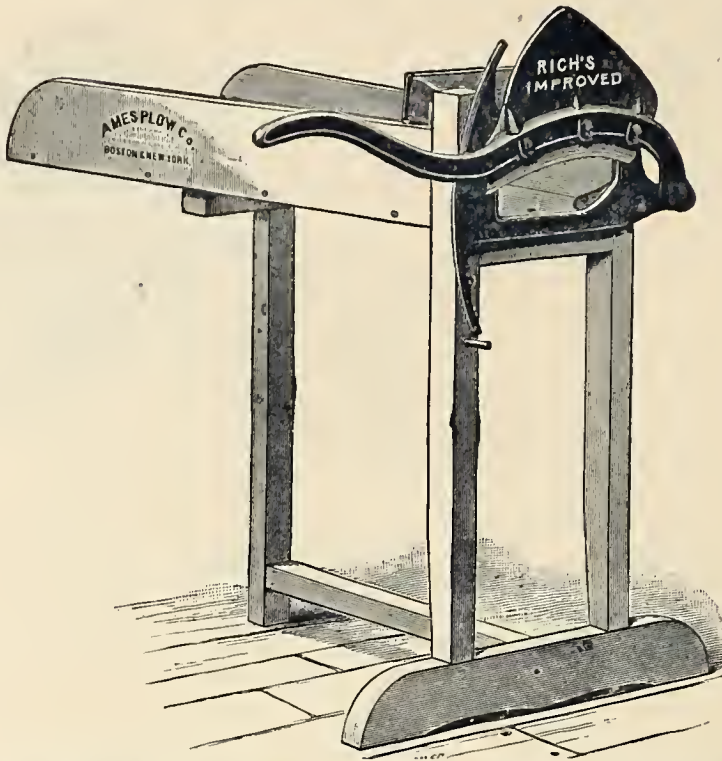


Fig. 442. — Rich's Improved Lever Feed-Cutter (Curved Knife).

*The Rich's Improved Lever Feed-Cutter*, shown by *Fig. 442*, is the latest and most successful in the market. By an ingenious contrivance, the lever of this cutter is held in bearing at both ends of the knife, keeping the cutting-edge against

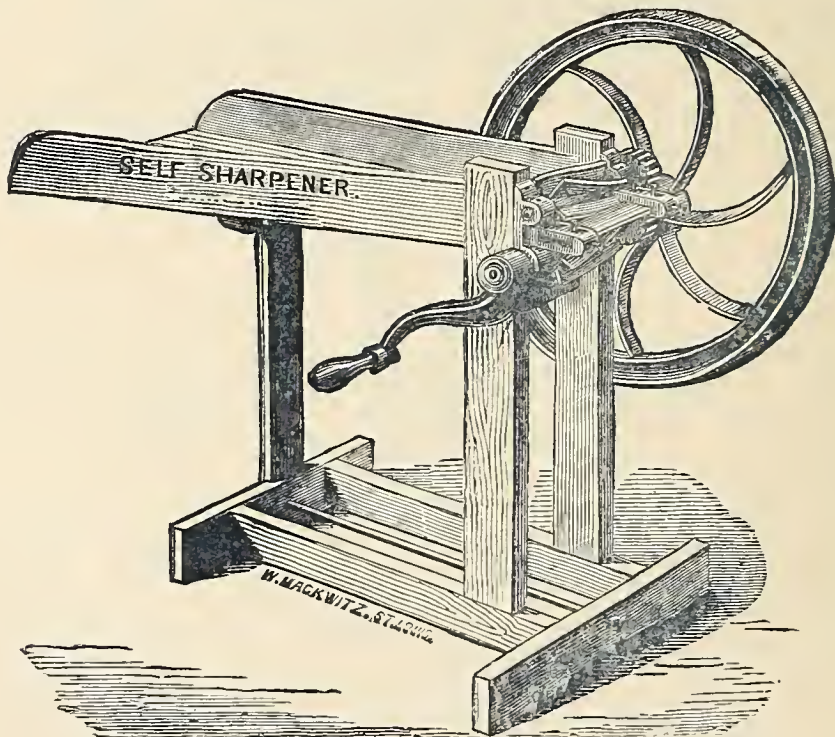


Fig. 443. — Self-Sharpener Feed-Cutter.

the bed, thus insuring a perfect cut, and is the only machine of its class wherein the knife is not liable to be forced away from the cutting-bed by the forage.

It is adapted to the requirements of those wanting a moderate priced machine for cutting hay, straw, corn-stalks, etc. This cutter will do the work fully as well as any of the higher-cost machines.

We make this cutter with either straight or curved knife, and there are four sizes of each kind.

**The Self-Sharpener Feed-Cutter**, represented by *Fig. 443*, is an approved cutter; and there is quite a demand for the smaller sizes.

The working-parts are made entirely of iron and steel; and the cutting is done by upper and lower flanged, revolving cylinders coming in contact with a straight, stationary knife. The knife can be sharpened without removing it from the machine.

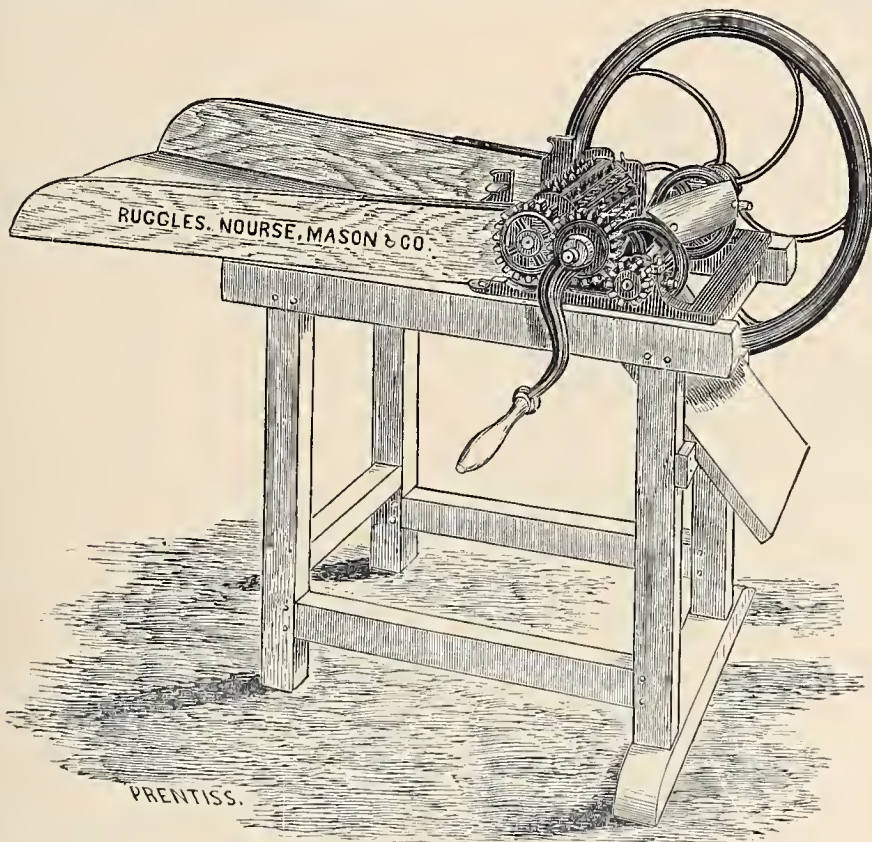


Fig. 444. — Cylindrical Stalk-Cutter.

**The Cylindrical Straw and Stalk Cutter**, represented by *Fig. 444*, is a first-class machine for cutting coarse forage, is very strongly made, and easily operated by one man.



## VEGETABLE-CUTTERS.

THERE is great advantage in feeding cattle and sheep during the winter months partly on vegetables, if properly cut, so as to prevent choking, and to make them

easy of digestion. The vegetables after passing through the cutter may be mixed with straw, coarse hay, or other forage which one would like to dispose of economically; and the mixture, after lying a little time, so that the forage may become impregnated with the juices and scent of the sliced roots, will be greedily and wholly consumed by the stock.

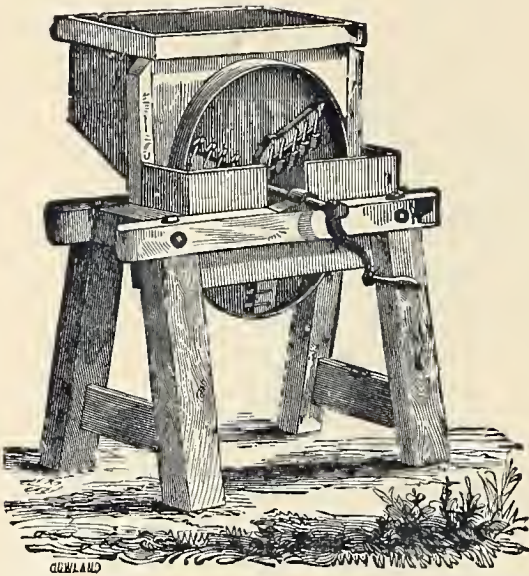


Fig. 445.—Ames Vegetable Cutter.

tables into thin slices with great rapidity, and the cross-knives operate to cut and break them into irregular pieces of convenient form and size for cattle or sheep to eat without danger of choking. It is very easily operated and can be worked by a boy. The arrangement inside is such as to prevent all liability of clogging the cutter while at work, and the knives are easily sharpened.

*Willard's Vegetable, or Root Cutter*, represented by Fig. 446, cuts vegetables very rapidly in thin slices fine enough for sheep, lambs and calves. This also has an iron cutting wheel, the knives in the form of loops being fastened to it.

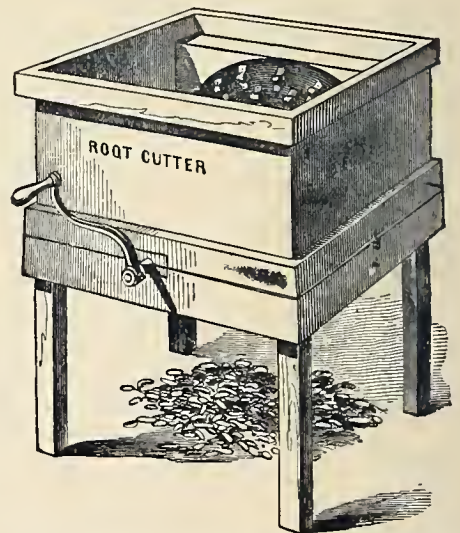


Fig. 446.—Willard's Vegetable Cutter.



Fig. B 447.—New England Vegetable Cutter.

*The New England Vegetable Cutter*, shown at *Fig. B 447*, with Hopper detached, is constructed on a different principle from those just described and affords the purchaser a good machine at a low price. The Main Shaft is fitted with a number of Rings on which are prongs as shown in the illustration. These prongs run between a set of knives fastened to frame of machine and thus the roots are torn and sliced into fine pieces, but the work is not so regularly done as by the Ames and Willard Cutters.

## GRINDSTONES.

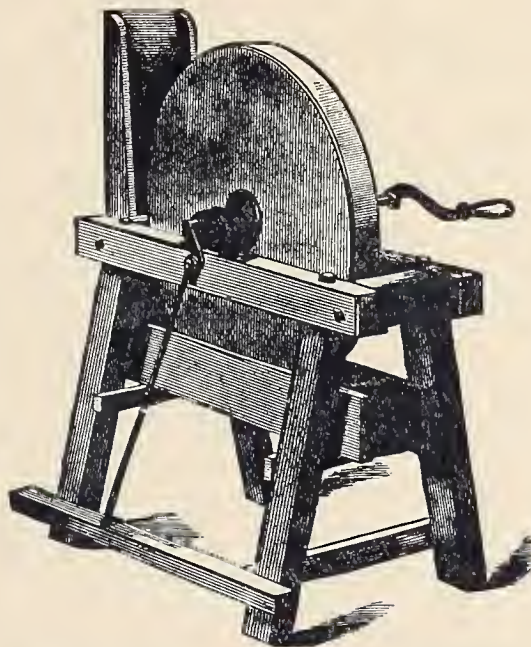


Fig. 480. — Mounted Grindstones.

*The Mounted Grindstone*, represented by *Fig. 480*, is arranged for use either by crank or treadle. We use the best quality stone, and can furnish any size, from eighteen inches diameter upwards.

*Oak Grindstone Frames*, same as shown in illustration of MOUNTED GRINDSTONE, are made in a great variety of sizes, and of best quality material.



## CHURNS, BUTTER-WORKERS, AND CHEESE-PRESS.

*The Improved Cylinder Churn*, represented by *Fig. 459*, is one of the most simple rotary churns. It is a light, portable style, and may be placed on a bench or



**Fig. 459. — Improved Cylinder-Churn.**

table, and operated by a child. Thousands are sold yearly. They are now made with metallic bearings, and are otherwise improved. There are five sizes, as follows : —

No. 1, 2 3-4 gallons.

“ 2, 4 “

No. 3, 7 gallons.

“ 4, 10 1-2 “

No. 5, 15 gallons.

*The Thermometer Churn*, represented by *Fig. 460*, the result of a series of careful scientific experiments, is offered confidently to butter-makers. In churning, the milk or cream should be of a suitable temperature ; but if warm or cold water is added, to produce the desired temperature, the butter is then invariably poor in quality, and limited in quantity.

To arrive at the exact necessary temperature was, however, always very difficult. One advantage of this churn consists in its having a thermometer placed in one end, entirely secure from breakage or accident, and always visible, so that the operator may know with certainty when the milk or cream is brought to the proper temperature. The thermometer is marked at sixty-two degrees, the temperature necessary to produce the most perfect separation.

Another advantage consists in its having a place in which to readily produce the requisite temperature by hot or cold water, without the water being mixed with the milk or cream. For this purpose, the inner part of the churn, or that in which the milk or cream is placed, is made of strong sheet zinc of a semicircular form. A short distance outside of this is another sheet of zinc, also of a semicircular form, and attached to, or backed up by, the body of the churn, so as to leave an intervening chamber surrounding that in which the milk or cream is placed, and into which cold or

warm water may be introduced as required to increase or diminish the temperature. If the milk or cream is too warm, the mercury will rise above sixty-two degrees, and cold water should be placed in the chamber: if too cold, the mercury will fall below the mark, and warm water should be used. The milk or cream should be agitated by turning the crank, while the water is being introduced, to give an even temperature throughout.

In regulating the temperature, the water may, when desired, be easily removed by taking out the plug. When the thermometer indicates that the milk or cream is of the proper temperature, the churning may be performed by giving the crank about forty revolutions per minute. The double zinc bottom and other durable properties of this churn remove all liability to warp or shrink, and adapt it to use in all countries, especially those with a hot or dry climate. It is light, simple, easy to operate, and readily cleaned.

We sell large numbers for all markets of the world; and there are nine sizes, as follows:—

No. 00, 1 3-4 gallons.

" 0, 2 1-2 "

" 1, 4 1-2 "

" 2, 6 "

No. 3, 9 gallons.

" 4, 10 1-2 "

" 5, 14 1-2 "

" 5 1-2, 20 "

No. 6, 28 gallons.

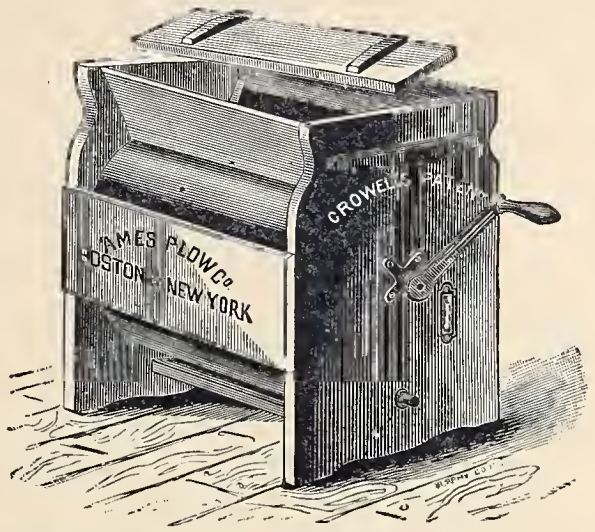


Fig. 460.—Thermometer Churn.

*The Robbins Patent Centripetal and Centrifugal Dash for Thermometer Churns,* represented by Fig. 461, is

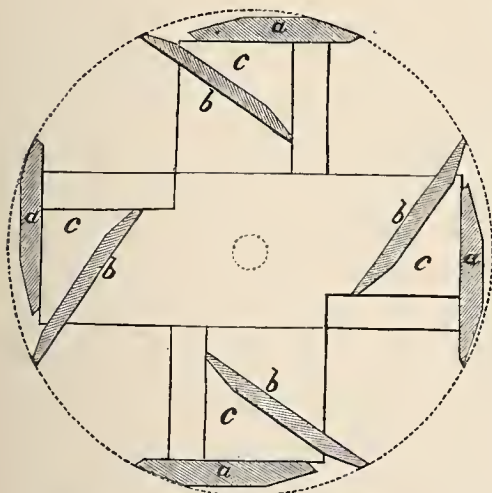


Fig. 461.—Robbins Patent Churn-Dash.

furnished with the THERMOMETER CHURN when desired. This dash consists of two sets of floats of two each, and each set placed at right angles with the other. One float in each set is placed at a short distance from the other one; and each innermost one has its near edge so near the edge of the next, and its front edge so distant, as to leave an angle of about twenty degrees between them, and so located as to set diagonally with the line of motion. By forcing the milk or cream through an angular opening between the floats, much more available churning friction is obtained

by this dash than by others, and very little more power is required to work it.

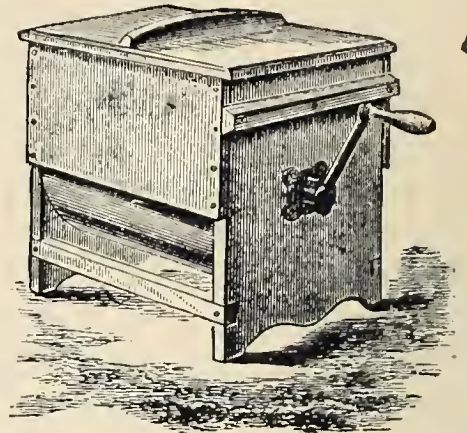


The same line of motion is continued until the butter forms, or separation takes place, after which a reverse action must be given. The reverse action changes the relation of the inner floats, and collects the butter to the centre of the churn in a solid roll. The dash is held in high estimation by those who have used it.

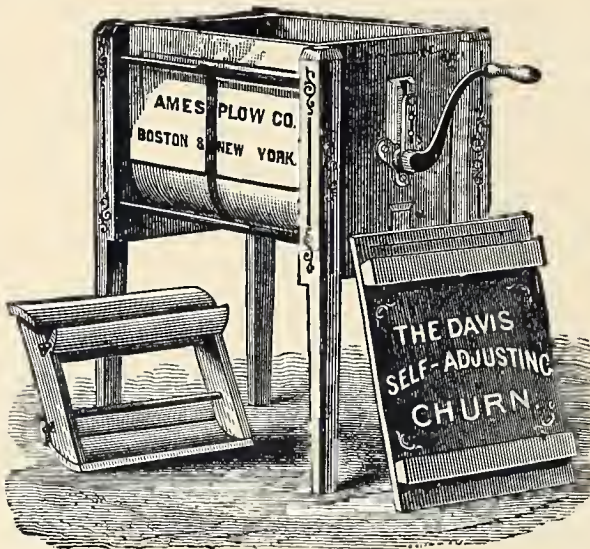
*The Durham Pattern Churn*, represented by *Fig. 462*, is made in ten sizes, as follows:—

No. 0, 2 1-2 gallons.	No. 5, 9 gallons.
" 1, 3 "	" 6, 11 "
" 2, 4 1-4 "	" 7, 13 "
" 3, 5 1-2 "	" 8, 16 "
" 4, 7 1-4 "	" 9, 25 "

It differs from the THERMOMETER CHURN in that it is made with a single wood bottom, and without the thermometer, the principle of operation and interior mechanism being very similar.



*Fig. 462.*—Durham Pattern Churn.



*Fig. 463.*—Davis Self-Adjusting Churn.

mass of cream; and, after the butter comes, the reverse motion of the dash closes the floats, thus expressing the butter-milk: by the same motion, the salt is thoroughly and evenly worked in.

Starting with simply cream in the churn, we have the result,—butter perfectly prepared, ready for shaping for the table, or packing for market, fully establishing the DAVIS, not only as a self-adjusting churn, but as a butter-worker.

*The Philadelphia Butter-Worker*, illustrated at *Fig. B 458*, is one that has given general satisfaction, being efficient and simple and convenient to handle. The ribbed roller, turned by a crank, is moved from end to end by means of the gears outside the tray. The iron parts are all galvanized to prevent rust. Four sizes are made, as follows:

*The Davis Self-Adjusting Churn and Butter-Worker*, represented by *Fig. 463*, possesses the best qualities for the successful making of butter, and there are five sizes, as follows:

No. 3 will churn	2 gallons.
" 4 " "	4 "
" 5 " "	8 "
" 6 " "	12 "
" 7 " "	18 "

It is furnished with a dash made with movable floats, thus securing the thorough agitation of the entire

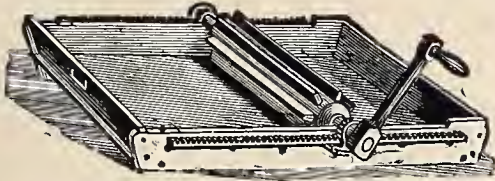


Fig. B 458.—Philadelphia Butter-Worker.

No. 1,	23 x 36 inch	Tray	-	capacity	50 pounds.
" 2,	20 x 30	"	"	"	30 "
" 3,	17 x 26	"	"	"	20 "
" 4,	14 x 23	"	"	"	8 "

*The Lever Butter-Worker*, represented by *Fig. 464*, should be more generally used in butter-making. Its advantages are, that the butter can be kept cool in working, and the necessity of using the hands avoided: the butter-milk may be more thoroughly worked from the butter, and the salt worked in more evenly. It is easily cleaned, takes but little room, and is sold at a low price. The lever is round and fluted. Three sizes are made.

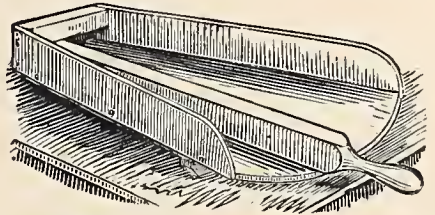


Fig. 464.—Lever Butter-Worker.

*The Self-Acting Cheese-Press*, represented by *Fig. 465*, is light and port-

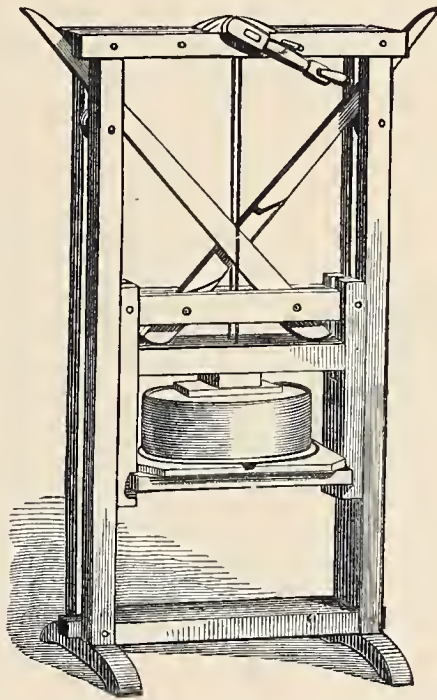


Fig. 465.—Self-Acting Cheese-Press.

able, and a great convenience in the dairy. The cheese is placed in the press; and its own weight presses it by a moderate pressure at first, as it should be, but gradually increases as the inside frame moves down, until the cheese is perfectly pressed. Light or heavy pressure may be applied to cheese of the same weight, by simply raising or lowering the inside frame by sliding blocks between the two followers: indeed, the press may be regulated to any degree of pressure that may be desired. The cheese is not removed until the pressing is completed.



## MEAT-CUTTERS.

*Perry's Patent Meat-Cutters*, made entirely of iron, with cutting-knives of best east-steel, are simple, compact, very efficient, and easily kept in order. The bearings are fitted accurately, and all parts well finished.

The shell, in two parts, held together by hinges and a clasp, is easily opened, and when closed is secured firmly in position for work. Every part of the machine is instantly accessible for cleaning: the cylinder only needs to be lifted out after the machine is opened; and, the inside of the shell being smooth, the whole can be kept sweet, and in perfect order, with but little trouble to the operator.

The knives are placed in two rows, one row, or section, each side of the machine, each section of knives being held in position securely by a plate fastened by screws: and, by removing these, each knife, or the whole section, may be taken out for grinding, or to be replaced by new ones, whenever occasion may require. All the machines, except the smallest sizes, are furnished with a slide, by moving which it can be regulated to cut coarse or fine.

We manufacture five sizes.

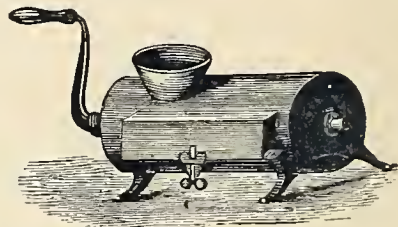


Fig. 466. — Meat-Cutter, No. 1. Fig. 467. — Meat-Cutter, No. 2.

*Meat-Cutters, Nos. 1 and 2*, represented by *Figs. 466 and 467* respectively, are the smallest sizes adapted to family use, cutting the meat in a manner equal to the larger machines, but not as rapidly.

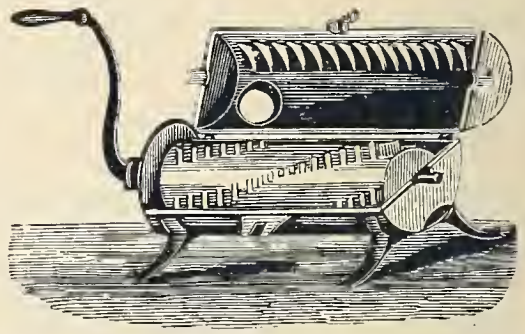
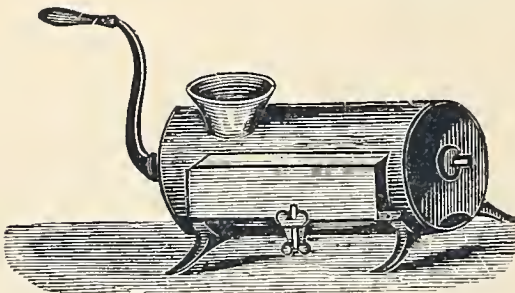


Fig. 468. — Meat-Cutter, No. 3. Fig. 469. — Meat-Cutter, No. 3, open.

*Meat-Cutter, No. 3*, is represented shut by *Fig. 468*, and open by *Fig. 469*, and is for hotel use.

**Meat-Cutter, No. 4**, is for butchers' use, and is operated by one or two men. It will cut one hundred and fifty pounds of meat per hour fine enough for sausages, and even more if the knives are kept sharp and in good condition for work.

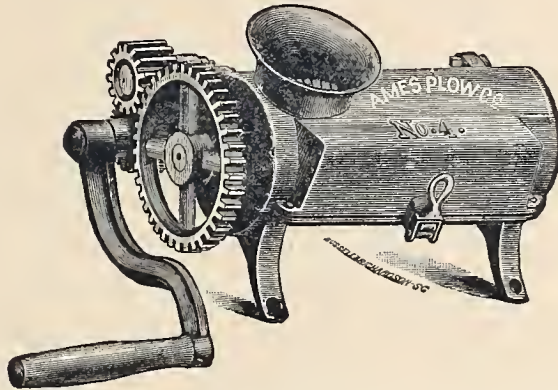


Fig. 470.—Meat-Cutter, No. 4, Geared.

**Meat-Cutter, No. 4, Geared**, represented by *Fig. 470*, is easily operated by one man, and is the usual size for butchers' use.

**Meat-Cutter, No. 5**, represented by *Fig. 471*, is the largest rotary cutter in the market. This machine is double geared, and furnished with a driving-pulley and

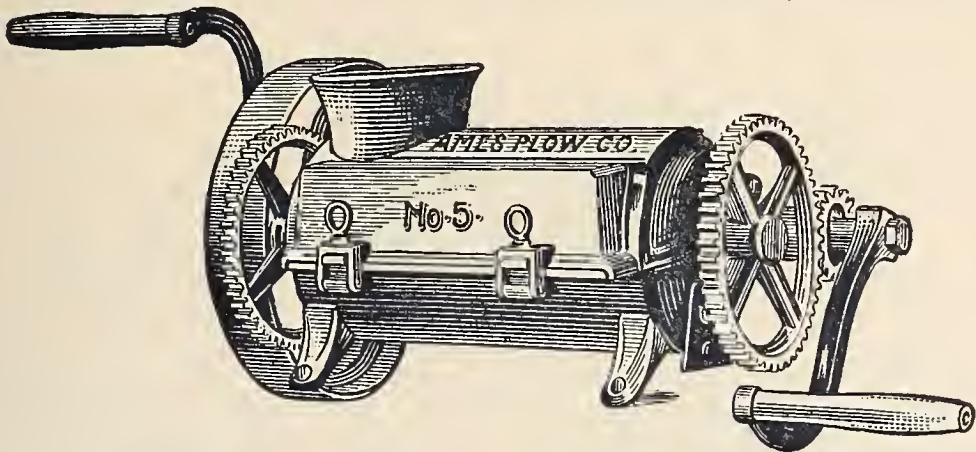


Fig. 471.—Meat-Cutter, No. 5, Double Geared.

two cranks, thus making it convenient for operation by hand or power, and capable of cutting five to seven hundred pounds per hour.



## SAUSAGE-STUFFERS.

**The Sausage-Stuffer.**—This machine is simple, and easily kept in order. The hopper, made of heavy, best quality tin, is strengthened with hoops, or bands, to keep it perfect in shape, thus allowing the plunger to pass back and forth smoothly, without waste of power by friction, thereby avoiding unnecessary strain and wear upon the hopper.

**Sausage-Stuffer, No. 0,** is light, yet durable and efficient, intended for family use.

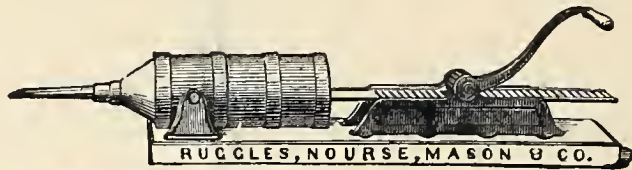


Fig. 472.—Sausage-Stuffer, No. 1.

**Sausage-Stuffers, Nos. 1, 2, and 3,** represented by Fig. 472, are suitable for hotel and butchers' use.

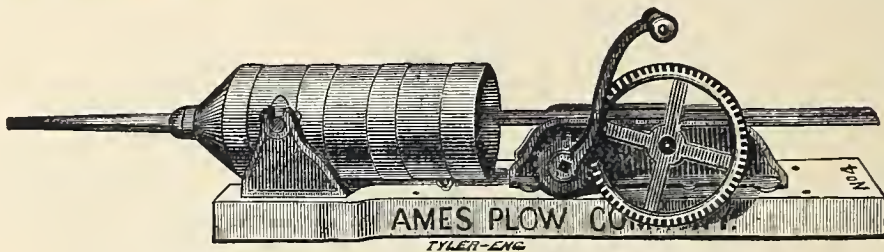


Fig. 473.—Sausage-Stuffer, No. 4, Geared.

**Sausage-Stuffer, No. 4,** represented by Fig. 473, a large butchers' machine. is geared, and does the work rapidly, but is easily operated. This is the size generally used by butchers.

**Sausage-Stuffers, Nos. 1, 2, 3, and 4,** are furnished with one or two tubes, thus adapting them to different sized skins.

**Sausage-Stuffer, No. 5, Geared,** larger and stronger, is made with hopper of galvanized iron, and is always furnished with three tubes for different sized skins.

## LAWN SEATS, LADDERS, AND SKIDS.

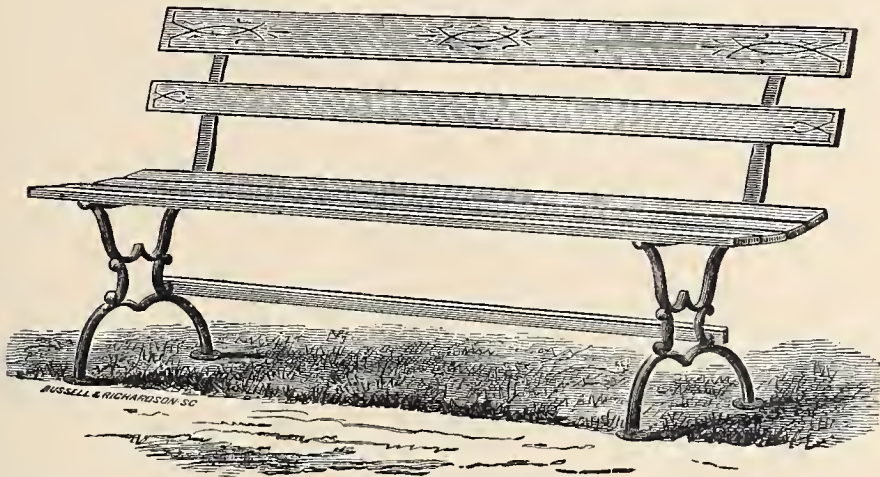


Fig. 477. — Lawn Seat.

*The Lawn-Seat*, represented by *Fig. 477*, is made of all sizes, from four and a half to six feet in length ; and large numbers are sold.

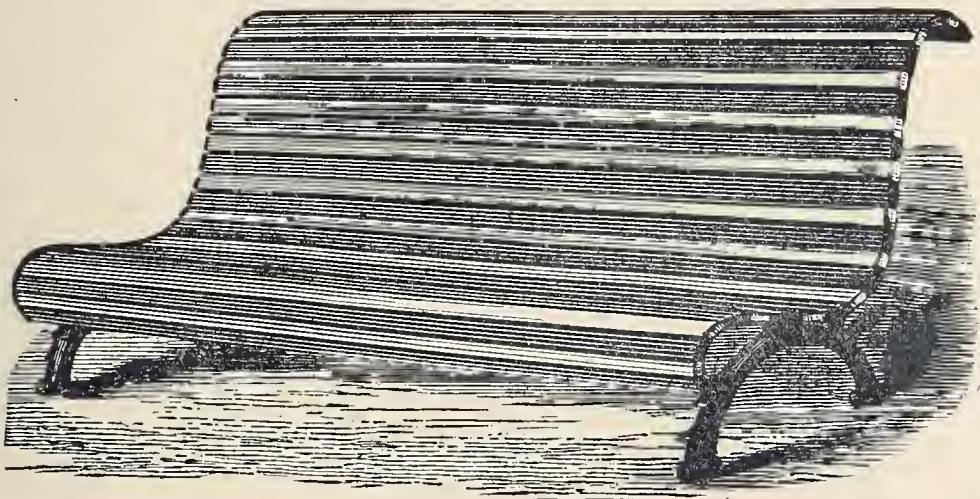


Fig. 478. — "Carroll Park" Lawn Seat.

*The "Carroll Park" Lawn-Seat*, represented by *Fig. 478*, is of a graceful and comfortable pattern, and, being strongly made, is very durable. It is usually made six feet in length.

*The Folding Lawn-Seat* is quite similar to the "CARROLL PARK," but is so made that the back can be folded when not in use.





Fig. 479. — Folding Ladder.

*The Folding Ladder*, represented by *Fig. 479*, is shown both open and shut. It is very convenient for use in orchards: it is made of various lengths. While shut, it may be set up among the branches of the trees, and then opened for use. It is strong, light, and portable.



Fig. B 485. — Common Ladder.

*The Common Ladder*, shown at *Fig. B 485*, of course needs no description. It can be furnished with either Round or Square Poles, and in all lengths from 10 to 50 feet. The quality of stock used in our Ladders is the best for the purpose.

*The Ladder Hook*, illustrated at *Fig. B 487*, is a very handy attachment, and it can be readily adjusted to any Ladder. Its uses are apparent.

Fig. B 487.  
Ladder Hook.

Fig. B488. — Fairy Step Ladder.

*The Fairy Step Ladder*, illustrated at *Fig. B 488*, is, we believe, the best Step Ladder made. The best of stock only is used, and it is put together in such a

way that it cannot come to pieces. It is light, but very strong, and especially recommended for a house ladder. Furnished in lengths of 2 to 12 feet. The extension legs are only sent when ordered

**The Little Giant Step Ladder**, illustrated at *Fig. B 489*, is a very strong ladder, and made of the best stock, and we recommend it for shops, stores, and other places where it must meet with hard usage. This ladder has been designed with a special view to the export trade. It can be packed flat to save measurement, and as it is put together with bolts it can be readily set up. These are made regularly of 4 to 12 feet lengths, but longer ladders can be supplied.

**The Boston Step Ladder** is made from good quality stock, and well finished, but is not so durably fastened. It can be packed for export, and furnishes a good medium-priced ladder.

**The Climax Step Ladder** is a new article. The steps are the same width, narrow, at the bottom as at the top, and the equilibrium is maintained by patented expanding legs, which open backwards and sideways at the same time. It is very compact when closed, and can be carried under the arm. This is the best long step ladder in use, and is much in demand by electric light companies for trimmers' use. Furnished 6 to 18 feet long, and up to 25 feet if needed.

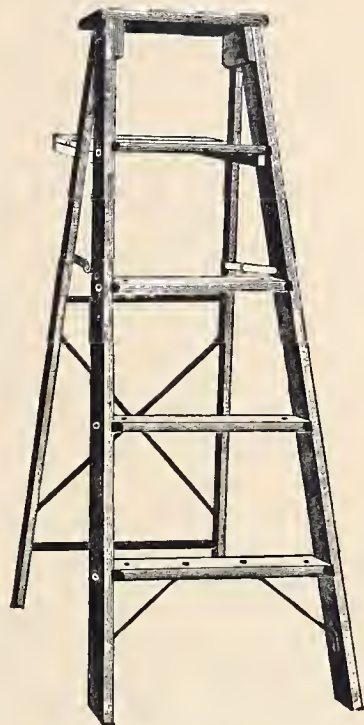


Fig. B 489.

**Little Giant Step Ladder.**



Fig. B 490. — Skid.

**Skids**, as shown at *Fig. B 490*, are made of selected hard-wood stock, and in lengths of 6 to 12 feet. We furnish two patterns, light and heavy, but above 8 feet long we recommend only the heavy pattern.

**The Skid Board** is made 7 and 8 feet long, of best hard-wood stock, ironed and riveted.



## STORE, RAILROAD, WHARF, AND BAGGAGE TRUCKS.

WE manufacture trucks of a great variety of kinds and sizes. The best material is used, and the workmanship and finish are superior in every respect, no expense being spared to make the best truck possible.

The axles are of steel, and the ends are not turned but forged, thus insuring greatest strength. The tips are made of forged steel, and the legs and braces are also of steel. The wheels are all bored to fit axles. Thoroughly bolted, and countersunk heads used on iron work.

*The Ames Store-Truck*, of which we manufacture eight sizes, is made with handles in one piece, and either with wheels inside or outside the handles.

*The Ames Inside-Wheel Store-Truck*, represented by *Fig. 500*, can be used in a narrow space without liability of striking articles in passing, as the axle does not project beyond the handles. Nos. 00, 0, 1, 2, and 3 are made in this manner.

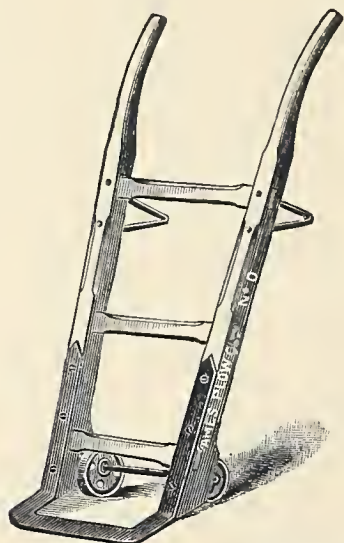


Fig. 500. — Ames Store-Truck (Inside Wheel).

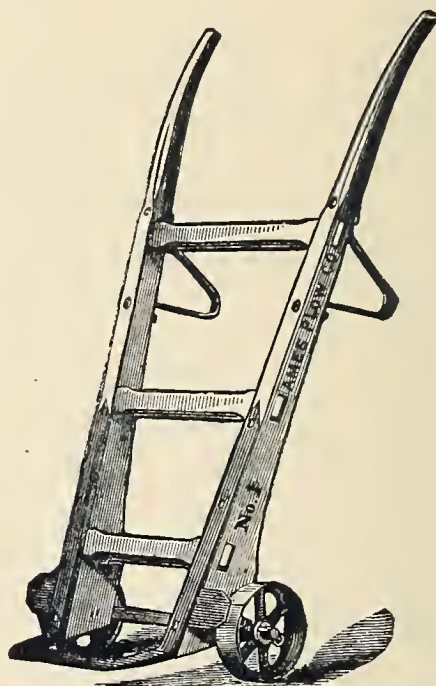


Fig. 501. — Ames Store-Truck (Outside Wheel).

*The Ames Outside-Wheel Store-Truck* has a large demand. *Fig. 501* represents the smaller sizes, Nos. 0, 1, and 2, for general store use. *Fig. 502* represents the larger sizes, Nos. 3, 4, 5, and 6, which are additionally braced, and the iron-work

extended up the handles above the upper crossbar, thus adapting them for heavy, rough work.

**Rubber-Covered Wheels.**—Our rubbered wheels are covered in the best manner, and by a new process, by which it is rendered impossible for the rubber to become detached from the iron wheels. AMES OUTSIDE AND INSIDE WHEEL TRUCKS can be furnished with these wheels when desired, also any other patterns made by us.

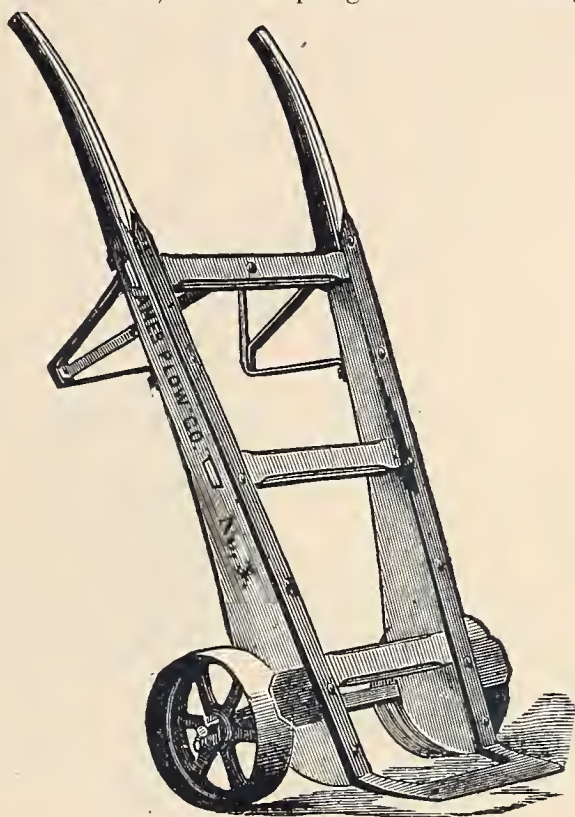


Fig. 502.—Ames Store-Truck (Heavy).

*The Ames Store-Truck, with Curved Wood Bars, for Barrels,* represented by *Fig. 503*, especially adapted for moving barrels, casks, etc., is intended for

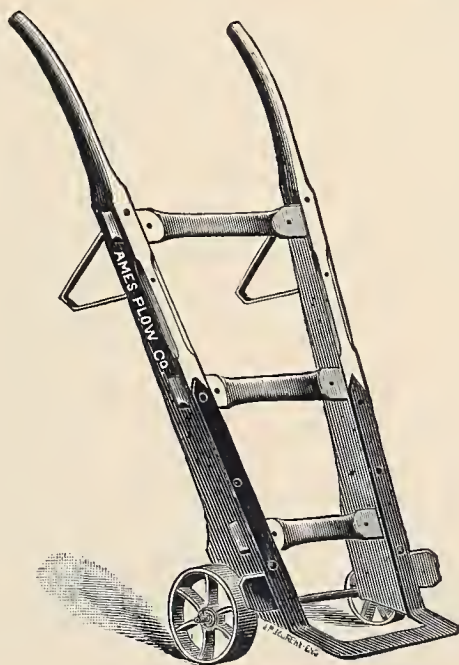


Fig. 503.—Ames Store-Truck, for Barrels.

use in warehouses and freight depots, and on wharves. It is made of all sizes, from No. 0 upward, same as our regular AMES STORE-TRUCK.



*The Ames Store-Truck, with Curved Iron Bars, for Barrels,* is same as the Wood Bar, but with three flat curved iron bars. We also sometimes make them with the two lower bars curved, and with the upper bar of wood, and straight.

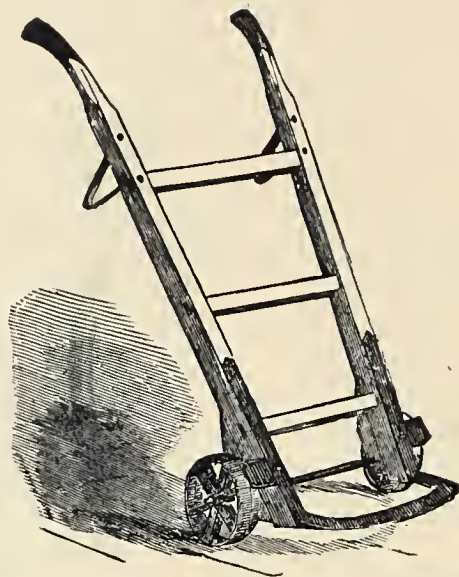


Fig. 504. — New-York Pattern Store-Truck.

*The New-York Pattern Store-Truck* is represented by *Fig. 504*. This is a light truck, of which we make six sizes, usually ironed as illustrated, but sometimes the iron-work is extended up the handles to upper crossbar.

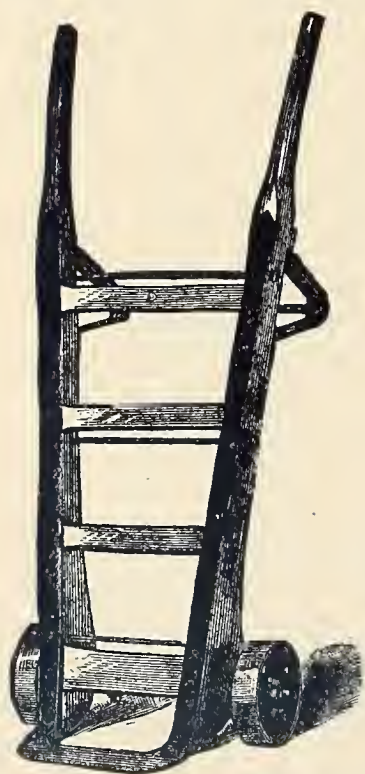


Fig. 505. — Extra Railroad Freight-Truck.

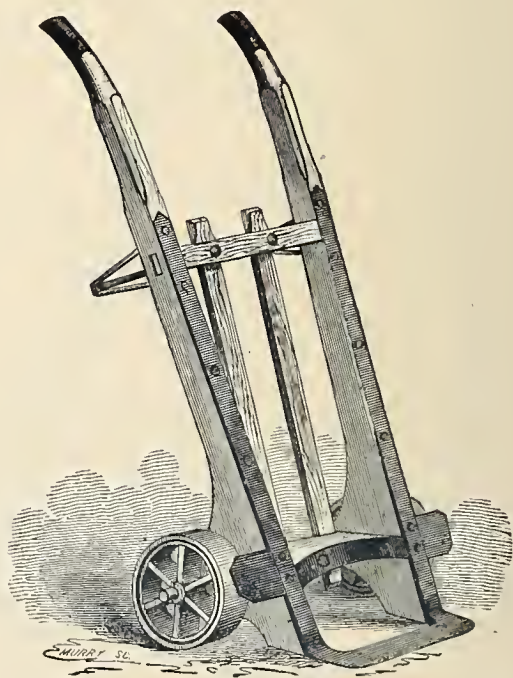


Fig. 506. — Heavy Truck.

*The Extra Railroad Freight-Truck*, represented by *Fig. 505*, is very favor-

ably known as a strong and durable truck, and is extensively used in large freight-stations. It is very heavy, additionally strengthened by brace-rods, and the iron-work on the handles extends beyond the upper crossbar.

*The Heavy Truck*, shown by *Fig. 506*, is made very strong, and intended for use in handling boxes of metal, and articles of a heavy nature packed in cases or casks.

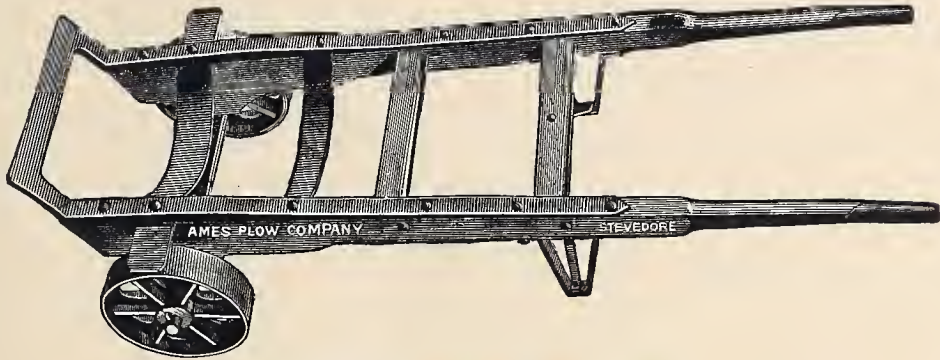


Fig. 507. — Stevedore-Truck.

*The Stevedore-Truck*, represented by *Fig. 507*, is made with long handles, is very heavy, is extra braced, and the iron-work on handles is extended beyond the upper crossbar. The two lower bars are iron, and curved, thus adapting the truck for barrels, casks, bales, etc., as well as other merchandise. It has a large demand for wharf and steamship use.

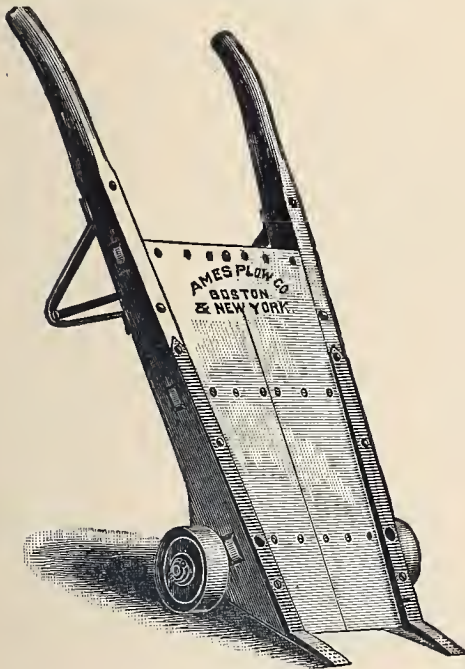


Fig. B 516.  
Dry Goods Case Truck.



Fig. B 517.  
Hotel and Carpet Truck.

*The Dry Goods Case Truck*, represented at *Fig. B 516*, is very much used in the large wholesale stores of Boston and other cities. The tips are so formed and slanted that the Truck can be pushed under a case as it stands on the floor or walk.

*The Hotel and Carpet Truck*, shown by *Fig. B 517*, has a bar handle. It is made with wheels inside or outside, and is adapted specially to the requirements of



hotels and carpet stores. This Truck is very often furnished with rubbered wheels.

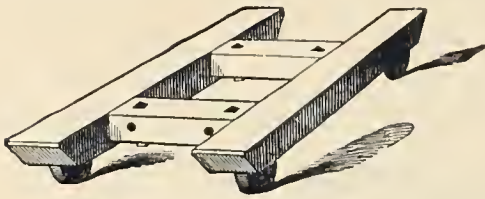


Fig. 508. — Block-Truck.

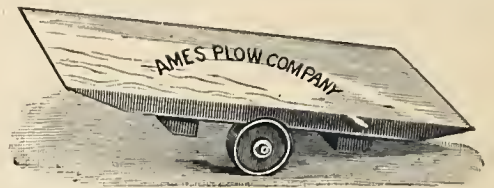


Fig. 509. — Balance-Truck.

*The Block-Truck*, represented by *Fig. 508*, is a solid framework placed on low wheels, intended for moving, for short distances, cases, pianos, and heavy articles difficult to raise from the floor.

*The Balance-Truck*, represented by *Fig. 509*, is suitable for same work as the BLOCK-TRUCK, but has two wheels only.

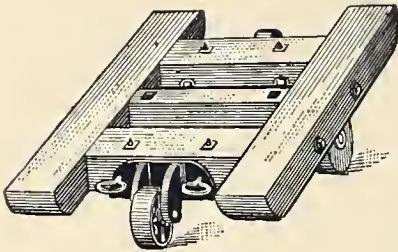


Fig. B 518.  
Balance Block-Truck.

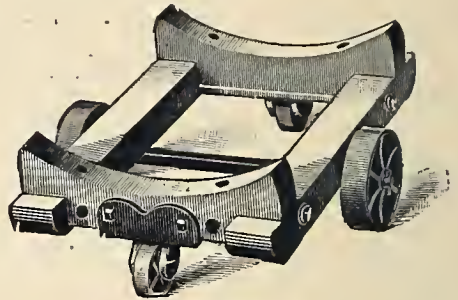


Fig. B 519.  
Hogshead-Truck.

*The Balance Block-Truck*, illustrated in *Fig. B 518*, combines the BLOCK-TRUCK and BALANCE-TRUCK just described.

*The Hogshead-Truck*, shown at *Fig. B 519*, is designed to hold a hogshead, and many are used by grocers and wine merchants, in most cases being left under the hogsheads until emptied.

*The Cask and Barrel Truck* is on the same principle as the HOGSHEAD-TRUCK just described, only lighter, and, as its name implies, it is suited to casks and barrels.

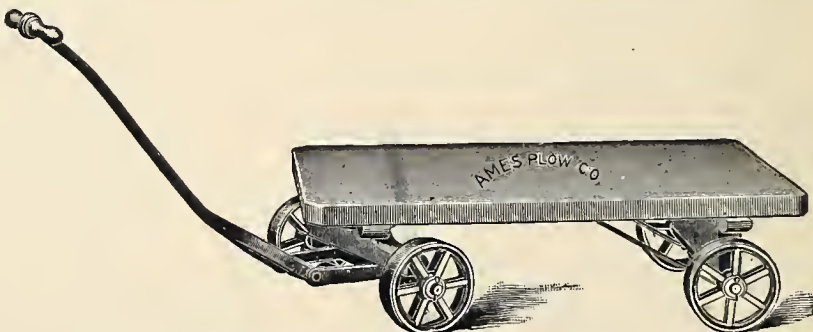


Fig. 510. — Platform-Truck.

*The Platform-Truck*, represented by *Fig. 510*, is used for bulky merchandise, boxes of heavy weight, sheet iron, lead, and other metals; also for sides of leather, etc. We manufacture seven sizes.

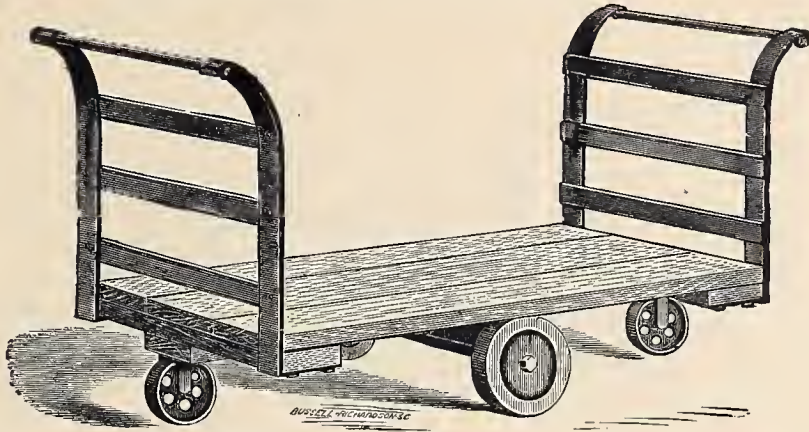


Fig. 511. — Patent Caster-Wheel Platform-Truck.

*The Patent Caster-Wheel Platform-Truck* is represented by *Fig. 511*. The invention is in attaching the swivel-wheels to the ends of the platform; and by this means, the truck, when loaded, can be easily and quickly turned upon its own centre.

It is largely used by dry goods merchants. We can furnish these trucks either with wood or iron side-wheels, as may be preferred.

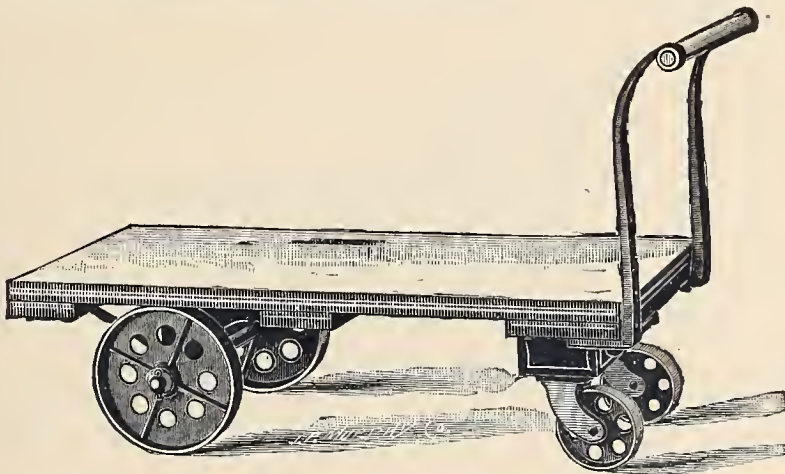


Fig. B 521. — Caster-Wheel Warehouse-Truck.

*The Caster-Wheel Warehouse Truck*, which we illustrate at *Fig. B 521*, is a heavier truck than the one just described, and is recommended for grocers, leather, commission, and grain warehouses, etc. It can be quickly and easily turned in a small space.

*The Sleigh-Truck*, shown at *Fig. B 520*, is used in stables and repositories under the runners of sleighs and sleds in moving them on the floor. For this purpose they are sold in pairs, but they are also used for marble slabs and other purposes.

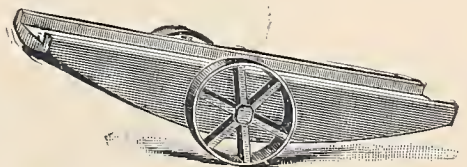


Fig. B 520. — Sleigh-Truck.

*The Way-Station Baggage-Truck* is similar to the RAILROAD TRUCK illustrated at *Fig. 512*, and described below, but smaller. As its name indicates, it is used at small railroad-stations.



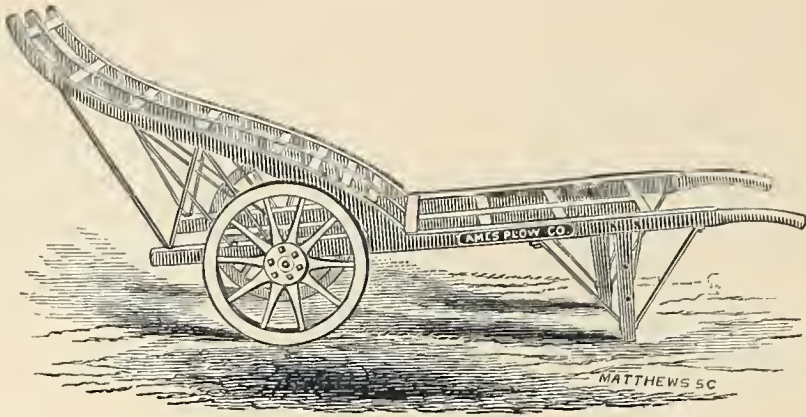


Fig. 512. — Railroad Baggage-Truck.

*The Railroad Baggage-Truck*, represented by *Fig. 512*, is the most approved pattern of two-wheel trucks for railroad and express use; and large numbers are sold. It is strongly made, the best material being used, and is thoroughly ironed and braced; it is finely painted and lettered to order. Two sizes are made, the illustration representing the larger size.

*The Express Baggage-Truck* is similar to the RAILROAD-TRUCK, but a larger size.

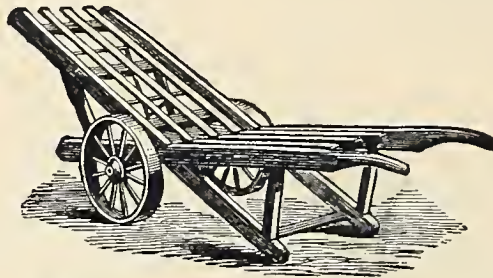


Fig. 513. — Common Baggage-Truck.

*The Common Baggage-Truck*, represented by *Fig. 513*, is used in railroad depots.

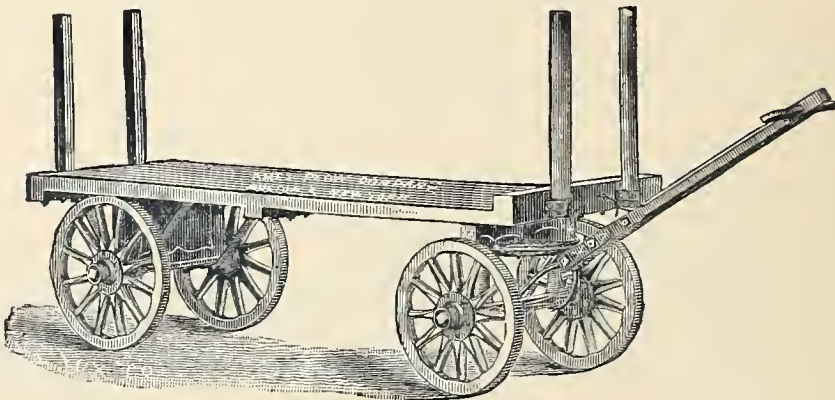


Fig. 515. — Four-Wheel Freight-Truck.

*The Four-Wheel Freight-Truck*, represented by *Fig. 515*, is less expensive than the BAGGAGE-TRUCK. It is strongly and durably made of best material, and well finished; and there is nothing better suited for the purpose.

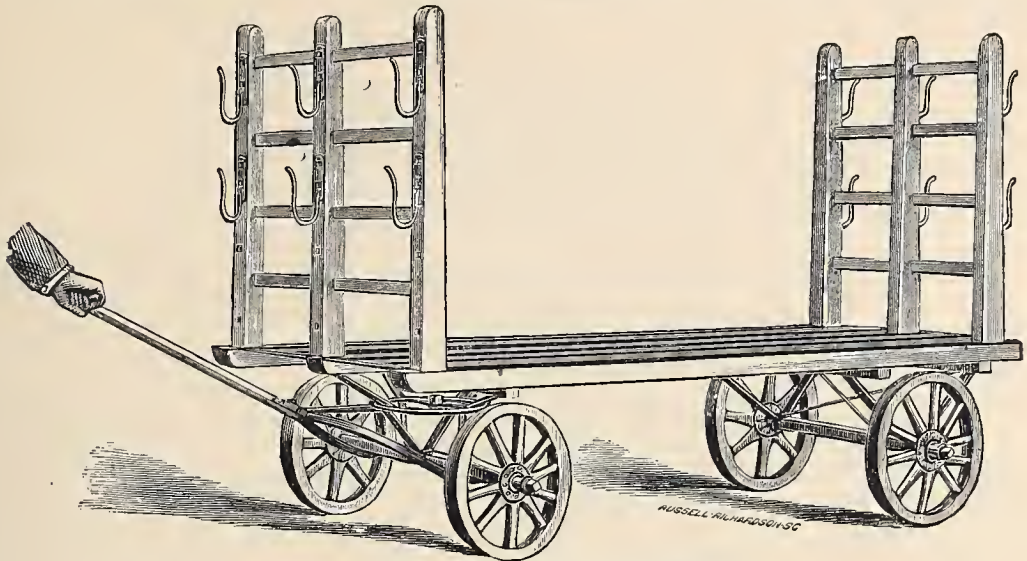


Fig. 514. — Four-Wheel Express-Truck.

*The Four-Wheel Express-Truck*, represented by *Fig. 514*, has been adopted by the leading express companies throughout the country, and is giving perfect satisfaction. The materials used are of the best quality; the barrow is thoroughly iron braced and strapped throughout, and is handsomely painted and lettered to order. We make all sizes, from five feet to twelve feet in length, and various widths.

*The Bag-Holder*, illustrated at *Fig. B 522*, not only furnishes a tunnel, but it also affords a truck on which the filled bags can be wheeled away.

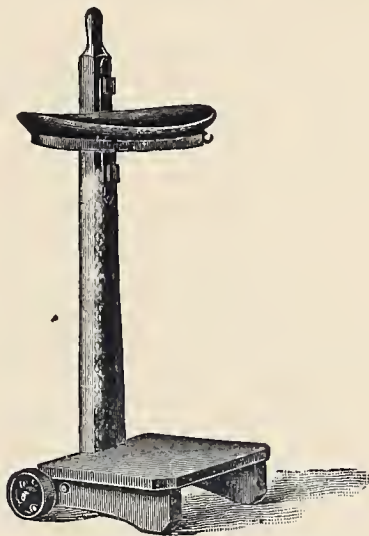


Fig. B 522. — Bag-Holder.

The tunnel can be adjusted to the height desired to suit bag used, and bag is secured by four hooks.

We recommend this for mills, grain and general stores, and farmers, and it is also well suited to the wants of newspaper offices for use in mailing.



## WHEELBARROWS.

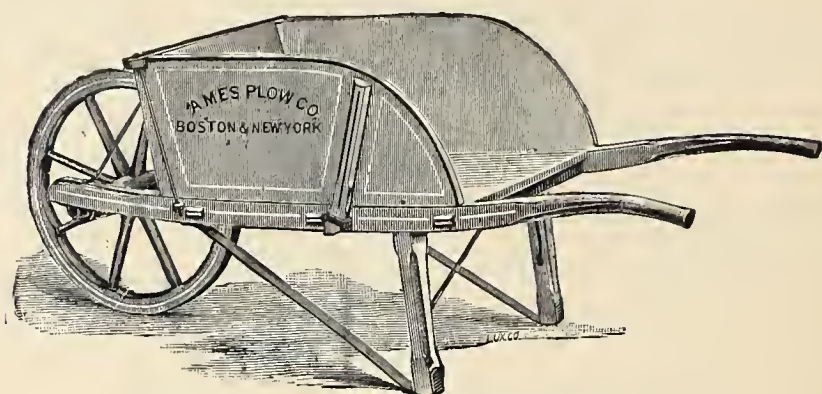


Fig. 526.—Garden Wheelbarrow.

*The Ames Garden-Barrow*, represented by *Fig. 526*, is strongly made, and well braced and painted. We make a number of kinds, and sell thousands yearly. The various sizes are as follows:—

**Boys' Barrows,—**

- No. 1, small.
- " 2, medium.
- " 3, large.

**Full-Size Barrows,—**

- No. 4, medium.
- " 5, "
- " 6, large.
- " 7, extra large.

*The Quincy Garden-Barrow* is similar to the AMES, but not so well made, and lower priced. It is made in sizes 2, 4 and 6 only.

For Export we usually furnish the barrows with Wooden Wheels with Iron Hubs, Tires and Axles, but we can furnish all iron wheels if desired.

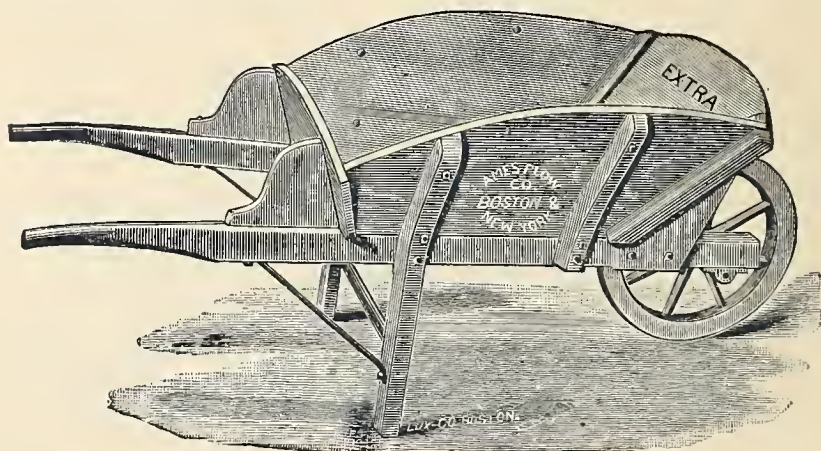


Fig. 529.—Extra Wood-Tray Coal-Barrow.

*The Extra Wood-Tray Coal-Barrow*, represented by *Fig. 529*, of which we manufacture two sizes, is very strong, and thoroughly bolted. It is used by railroads and steamboats, in foundries and engine-rooms, and for mining purposes.

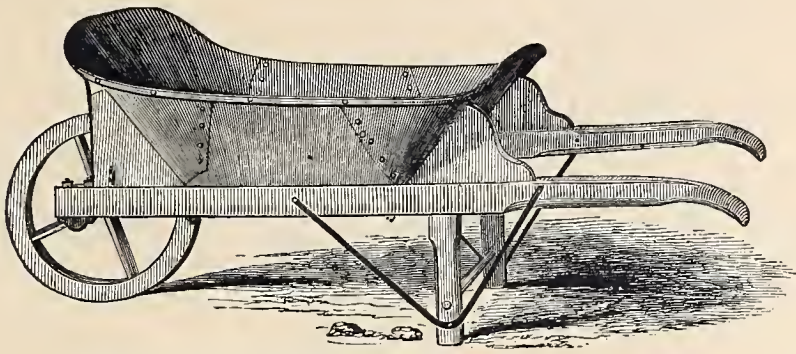


Fig. 530. — Extra Iron-Tray Coal-Barrow.

*The Extra Iron-Tray Coal-Barrow*, represented by *Fig. 530*, is for the same uses as the *WOOD-TRAY BARROW*. It is preferred where hot ashes are to be carried. It is made very strong, yet is light, and readily handled.

*The One-Wheel Run-Barrow* (not illustrated) is quite similar to the *EXTRA WOOD-TRAY COAL-BARROW*, but with much larger overhanging tray, protected on the inside by iron plates and straps. Its capacity is five hundred pounds. It is extensively used in loading and unloading vessels with coal, salt, fertilizers, etc.

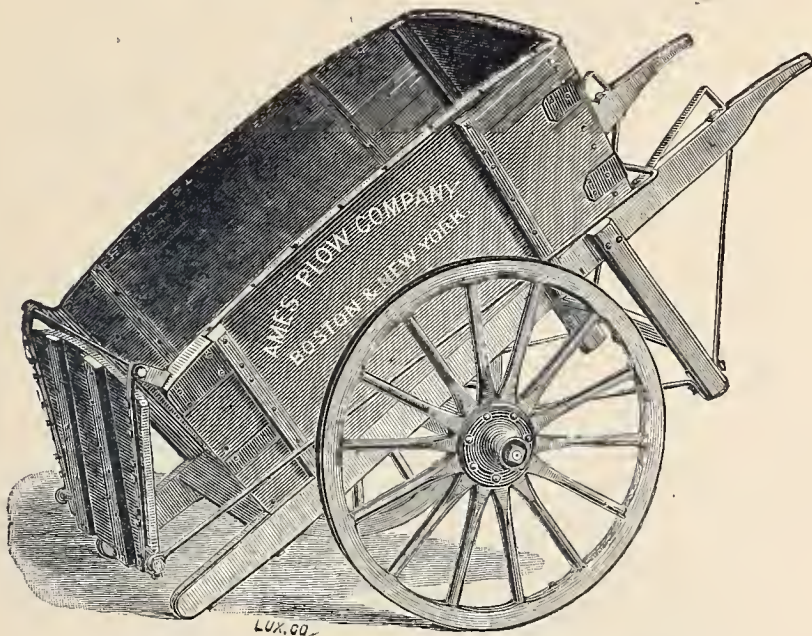


Fig. 531. — Extra Two-Wheel Run-Barrow.

*The Extra Two-Wheel Run-Barrow*, represented by *Fig. 531*, is made in two sizes, — the smaller, capacity one thousand pounds; and the larger, capacity fifteen hundred pounds. It is in general use among coal, salt, and fertilizer dealers, for loading and unloading vessels. The inside of the body is lined with sheet-iron; and it is thoroughly ironed, braced, and bolted throughout, making it very enduring. Either size can be readily operated by one man.



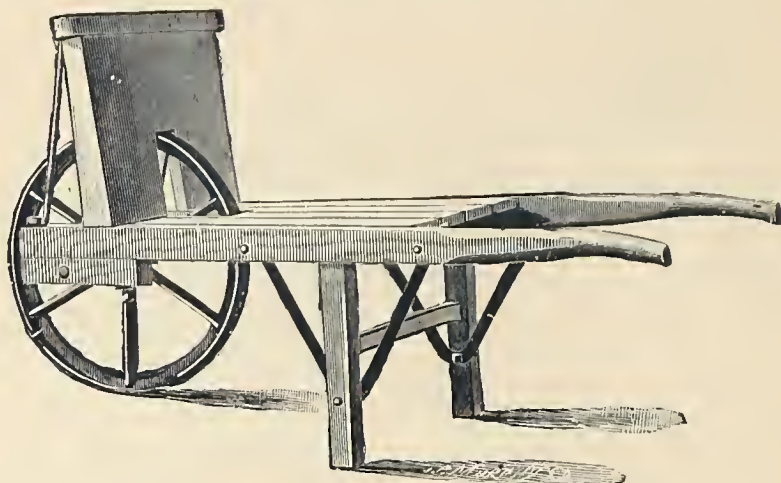


Fig. B 541.—Brick Barrow.

*The Brick-Barrow*, illustrated at *Fig. B 541*, is one of a number of forms we make for this purpose. This has a cast-iron wheel, and is strongly bolted and braced. A lighter wheel with cast hub and rim, and steel spokes, is now more generally used. We can furnish either open bottom or tight bottom barrows as desired.

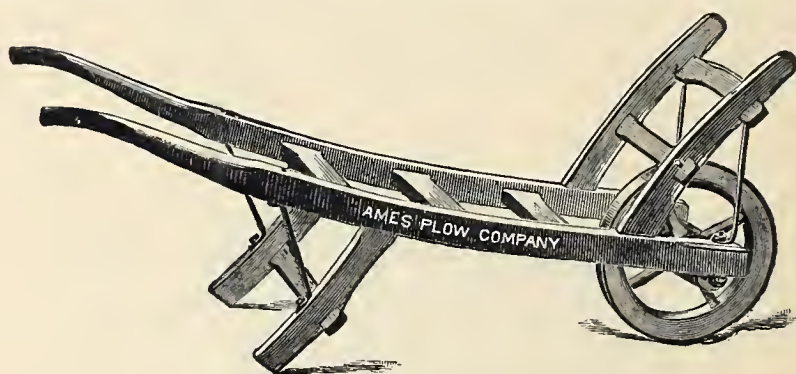


Fig. 532.—Cord-Wood Barrow.

*The Cord-Wood Barrow*, represented by *Fig. 532*, is in general use by parties handling quantities of cord-wood: it is strong and durable.

*The Logwood Barrow* is same pattern as the *WOOD BARROW*, but considerably stronger and heavier, being ironed full length of framework. Large numbers are sold, and they are admirably suited for the purpose.

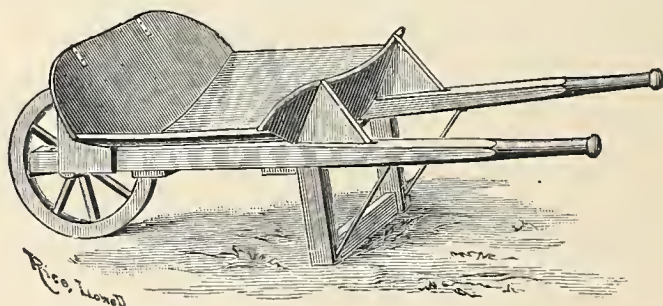
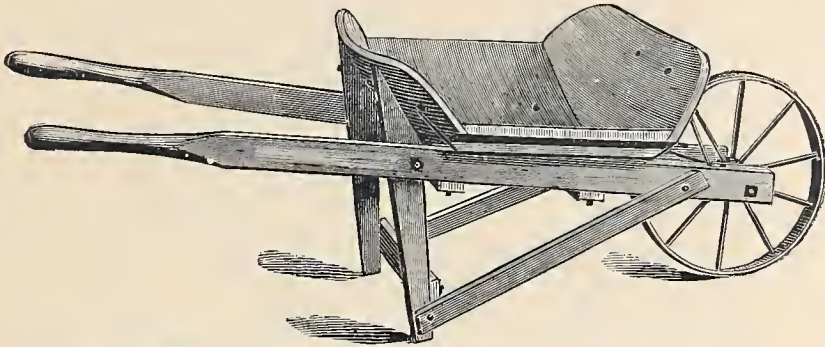


Fig. B 542.—Royal Canal Barrows.

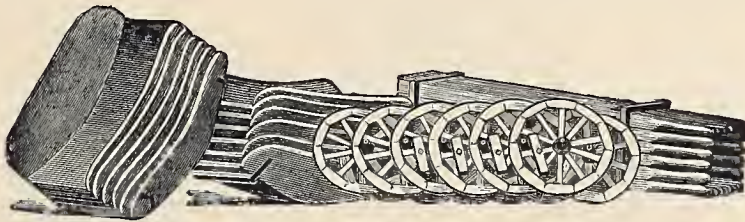
*The Royal Canal-Barrow*, shown at *Fig. B 542*, is one which we can recommend as the very best barrow of this style made. The handles and legs are made of oak. The wheels, either wood or steel, are with  $1\frac{1}{2}$  inch tire, and very durable.

The fastenings, both bolts and nails, are well suited to the construction of the rest of the barrow. These barrows are packed for export similar to *Fig. B 544*.



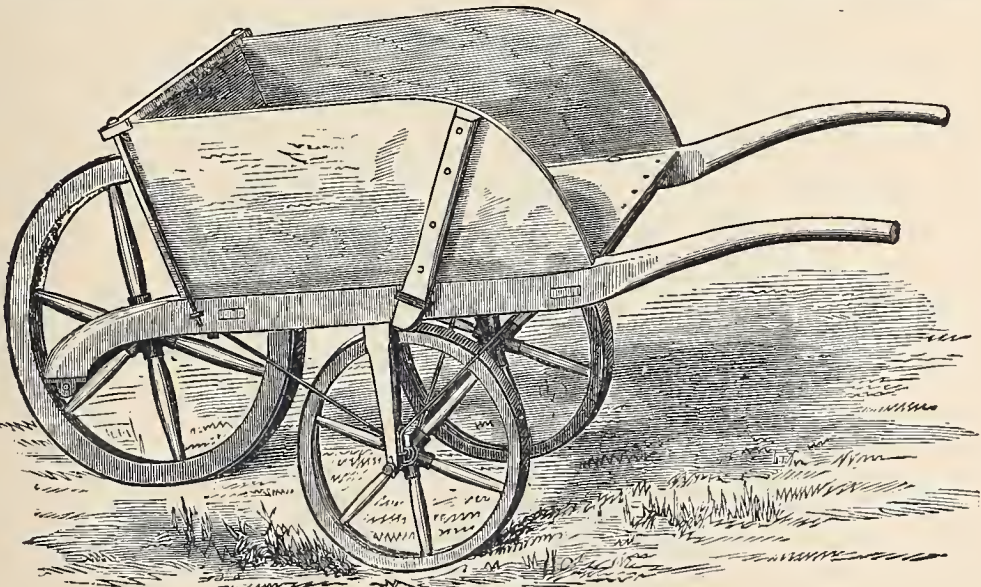
**Fig. B 543.—Bolted Contractors' Barrows.**

*The Bolted Contractors' Barrow*, which *Fig. B 543* illustrates, is a first-class barrow of this type in every respect. The wheels are wood, with  $1\frac{1}{2}$  inch tires, or steel, with  $1\frac{3}{8}$  inch tires.



**Fig. B 544.—Manner of Packing Canal Barrows.**

The manner of packing these barrows for export is illustrated at *Fig. B 544*.



**Fig. 533.—Three-Wheel Wheelbarrow.**

*The Three-Wheel Wheelbarrow*, represented by *Fig. 533*, when heavily loaded, can be moved with more ease than the common wheelbarrow; and, by bearing down on the handles, obstructions can be readily passed. It is adapted specially to city sidewalk and street use, and has a large demand.



## HAND-CARTS.

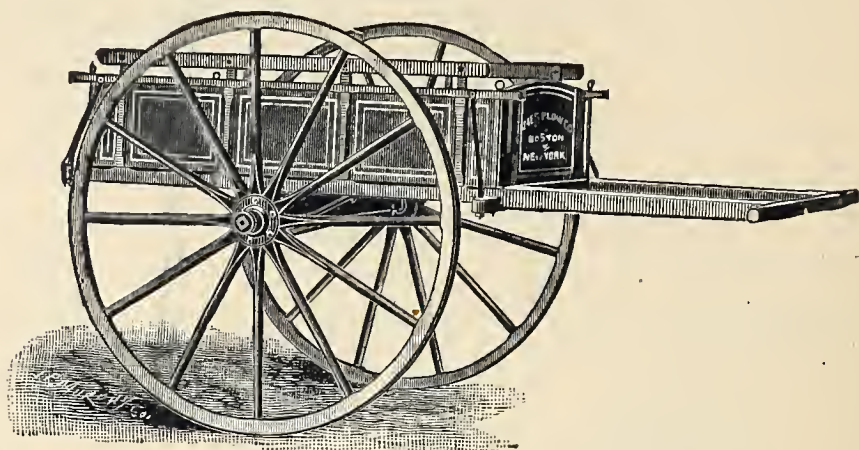


Fig. B 536.—Hand-Cart.

*The Hand-Cart*, represented by *Fig. B 536*, is very useful for light work. They are thoroughly made, and finely painted. The leading kinds are as follows:—

Boston Hand-Cart. Iron Hubs.

Philadelphia Hand-Cart. Wood or Iron Hubs.

Heavy Hand-Cart. Iron Hubs.

Extra Heavy Hand-Cart. Iron Hubs.

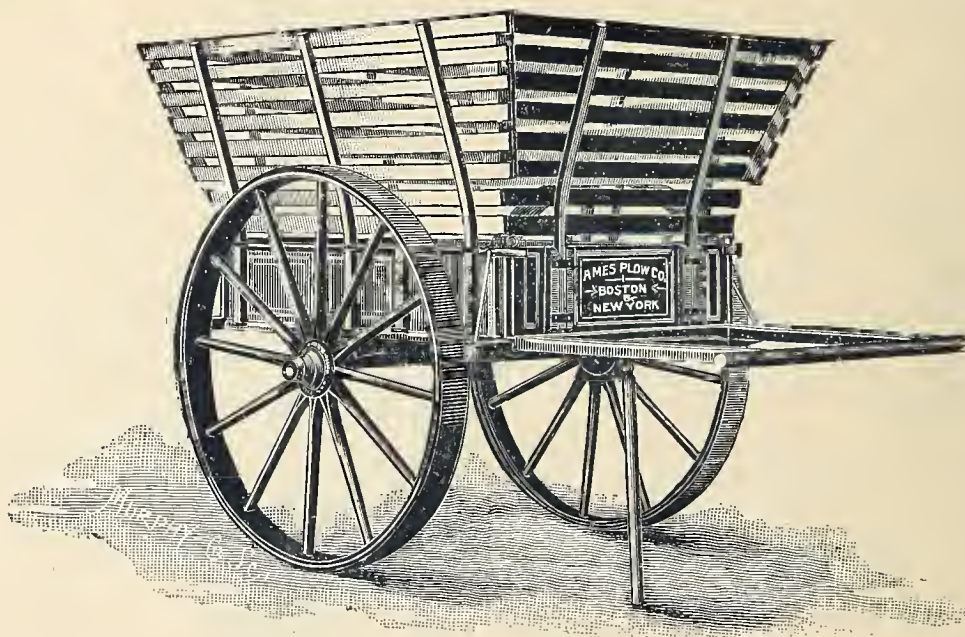


Fig. B 537.—Lawn Hand-Cart.

*The Lawn Hand-Cart*, illustrated at *Fig. B 537*, is made with large, flaring side and end racks and with wide tires, especially for the purpose designated. We manufacture two sizes.

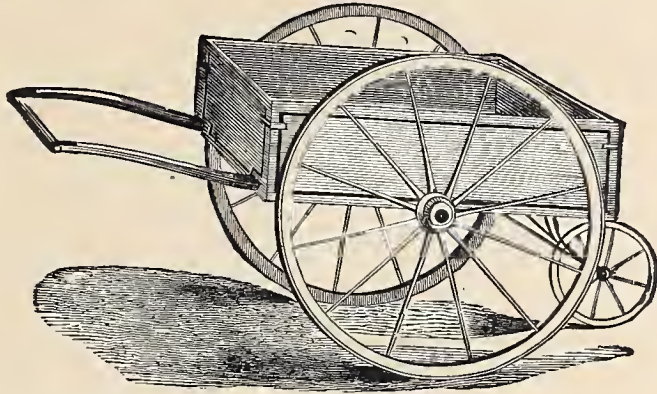


Fig. 535.—Three-Wheel Hand-Cart.

*The Three-Wheel Hand-Cart*, represented by *Fig. 535*, is made especially for city use. It is particularly adapted for publishers, printers, paper dealers, and grocers. We make it with springs when ordered,

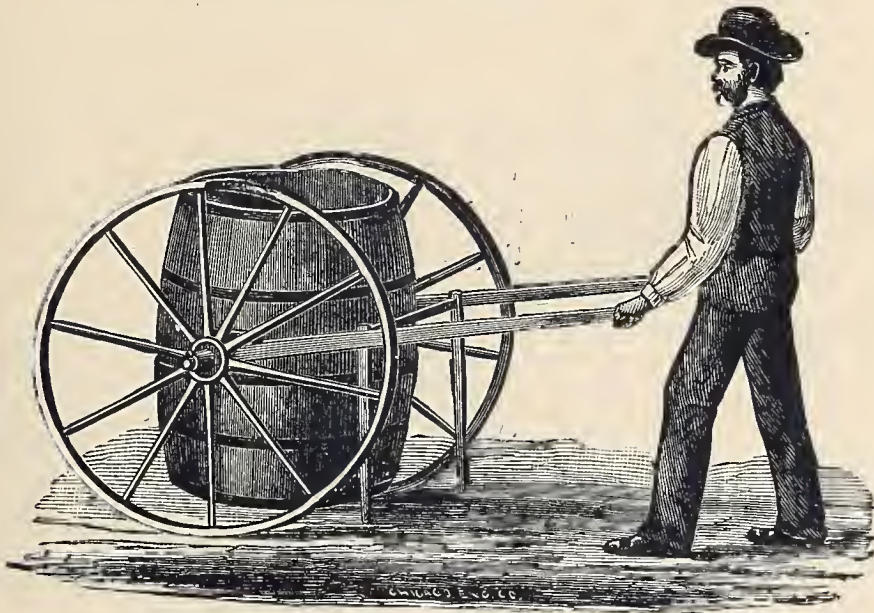


Fig. B 538.—Water-Barrel Cart.

*The Water Barrel Cart*, illustrated at *Fig. B 538*, is a very convenient and useful cart for carrying water, and innumerable other purposes. These, as made by us, are so constructed that the barrel can be readily detached from the frame, and thus several barrels can be utilized if desired. For export we usually furnish complete, less barrel, as any oil or varnish barrel will answer the purpose.



## CARTS AND WAGONS.

WE have, since issuing our 1886 catalogue, perfected a large line of two-wheel and four-wheel carts, for farm, plantation, town and city use; also a line of wagons for various purposes. These we present in the following pages. We are, of course, prepared to furnish all the carts and wagons, wheels, axles, etc., of patterns that we have heretofore made, and which have been long and favorably known, both at home and abroad.

Our increased facilities for turning out this class of work will enable us to construct promptly any quantity in this line that may be called for. We can furnish to order any particular style needed to suit the country and use for which they may be intended; and, with our long ex-

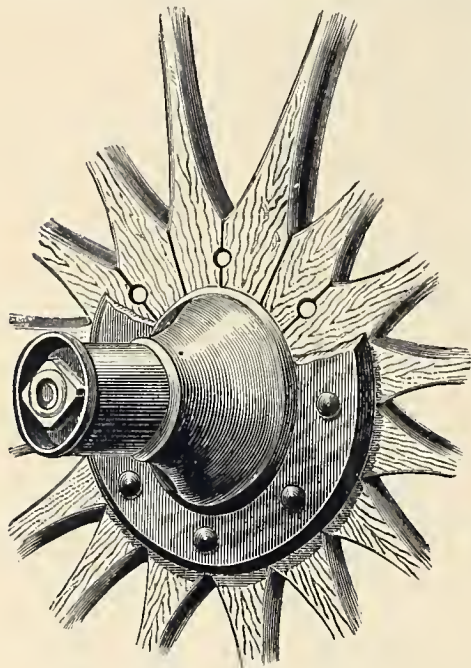


Fig. 550.—Iron Hub.

perience in foreign markets, we are well capable, with limited instructions, of judging what will suit. Our salesmen have visited all the English Colonies, while our Mr. F. G. Crosby has had many years' experience on the sugar estates of the West Indies.

The materials we use are all of best selected quality, the workmanship is such as to render the jobs durable, and the finish is thorough and first class in every respect.

**Hubs.**—THE IRON HUB, represented by Fig. 550, is the pattern generally used in our wheels, although we also make a large number with Wood Hubs. This illus-

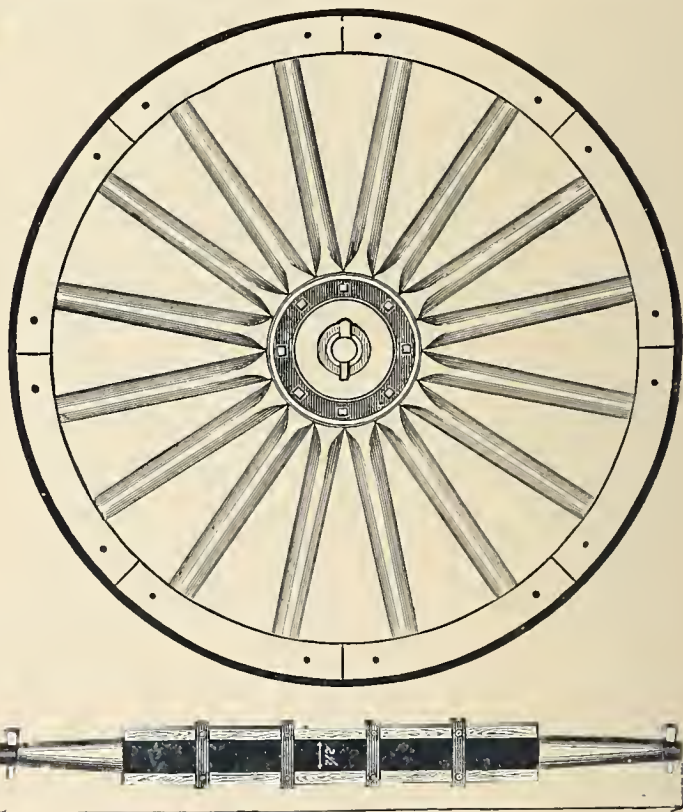


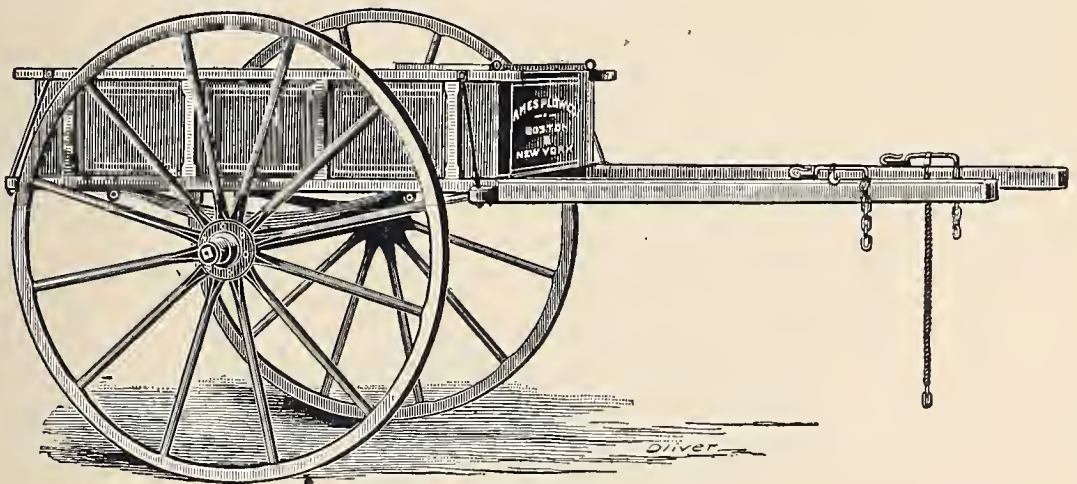
Fig. 551.—Cart-Wheel and Axle.

tration gives a perfect showing of the manner in which the spokes are fitted to the Iron Hub. The wheel is rendered solid and firm by the bolts fastened through the flanges, which securely hold the spokes in place, and they cannot move and work loose as is possible in the mortises of a Wood Hub. The Iron Hub certainly has an advantage in hot countries where climatic exposure dries up the wood, for by tightening the bolts the flanges are drawn together, and the wheel is always firm.

**Wheels and Axles.**—Presented at *Fig. 551* are views of wheel and of axle with bed attached. We show the iron hub and the linchpin, but generally the axles are furnished with nuts instead of linchpins, and we build the wheels with best quality wood hubs when desired. As a guide in ordering we name some of our regular sizes of wheels and axles as follows:—

For 1 1-2 inch Axle, Wheels having 2 1-2 x 3-8 inch Tires.									
"	1	3-4	"	"	"	"	3	x 3-8	"
"	2		"	"	"	"	3	1-2 x 3-8	"
"	2	1-4	"	"	"	"	3	1-2 x 1-2	"
"	2	1-2	"	"	"	"	3	1-2 x 5-8	"
"	3		"	"	"	"	3	1-2 x 5-8	"
"	3	1-2	"	"	"	"	3	1-2 x 5-8	"

Of course these dimensions can be varied in any way desired, also diameter of wheels to suit our customers. West India sugar estates use a large number of our wheels and axles, and for this purpose they must be very strong and of sufficient diameter to insure easy work for the team over soft roads.



**Fig. B 549.—Donkey-Cart.**

**The Donkey-Cart.**—The cart illustrated at *Fig. B 549*, which we designate by this name, is a very light two-wheel cart, sometimes made to dump, and sometimes not. We illustrate it with springs, but also build without springs when so desired. This is a very handy cart in which to ride about the plantation, as well as for many other light uses.

**The Mule-Cart.**—This is a light dump-cart, and specially designed for use in the South and in the West Indies, with a small mule.

**The Light Gravel-Cart.**—This cart, although strong and serviceable, is small and light to adapt it for use with a mule or a light horse. It is arranged to dump,



and is well suited for hauling gravel and stones, as well as for soil and other purposes. The front end is made removable, so it can be used for wood or lumber.

**The Light Farm-Cart.**—This has the same capacity, and is same in general construction as the LIGHT GRAVEL CART. It, however, has a frame bottom, which makes it lighter, although not so well suited for gravel. It is very much liked for the general requirements of farm and plantation where mules and small horses are used.

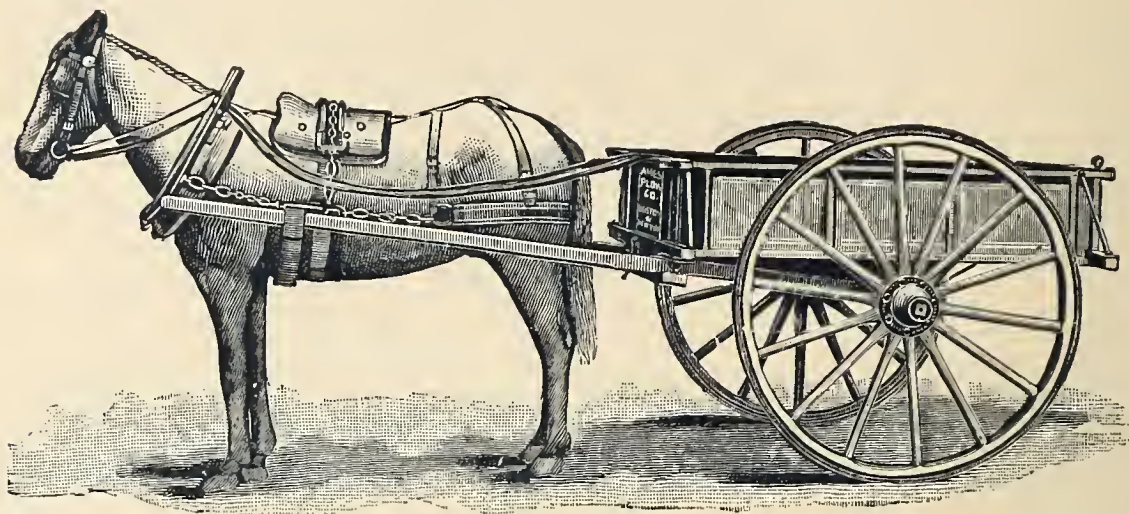


Fig. B 562.—Medium Farm-Cart.

**The Medium Farm-Cart.**—This is represented at *Fig. B 562*. It is light enough for an ordinary farm horse, and is of suitable carrying capacity for general use.

**The Heavy Farm-Cart.**—Of nearly same carrying capacity as the MEDIUM, but heavier, and adapted to rougher work where large horses are used.

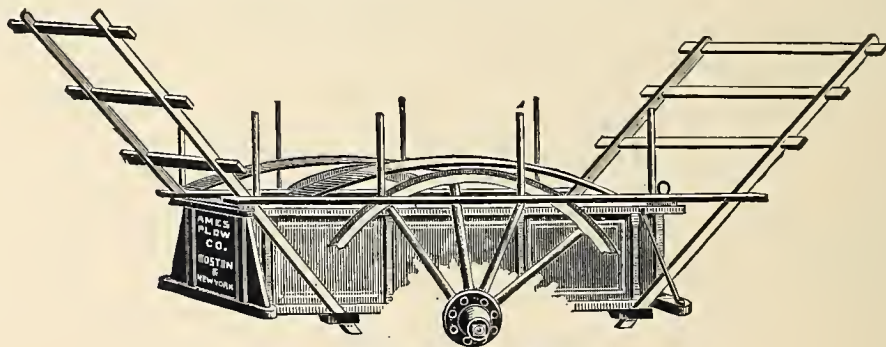


Fig. B 563.—Hay Rigging.

**The Hay Rigging.**—*Fig. B 563* represents the HAY RIGGING which we have perfected for use on our FARM-CARTS. It is a very convenient rig; is light and readily attached. The outriggers in which the pins are placed are outside the wheels, and the hay is kept off the wheels by the curved slats. A similar attachment is made for use on our FARM-WAGONS.

**Shifting Side and Front Boards.**—For carrying leaves, loose earth, and manure, our FARM-CARTS can be rigged with SHIFTING SIDE AND FRONT BOARDS, thereby nearly doubling their capacity.

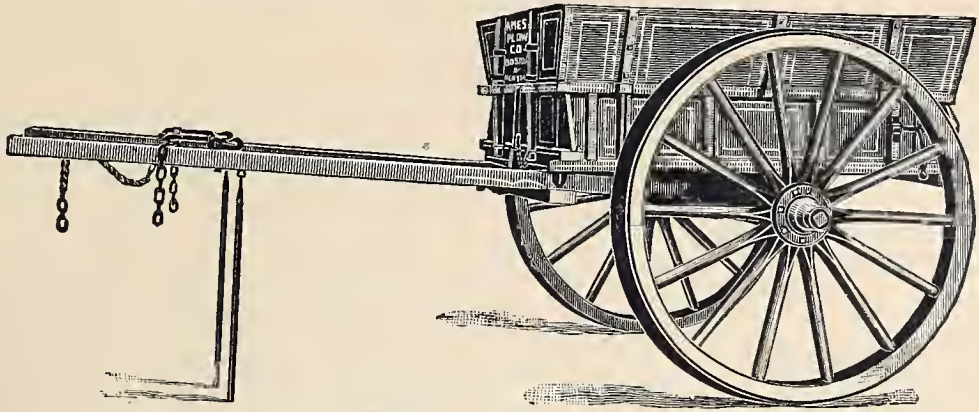


Fig. B 564.—Truckers' Cart.

**The Truckers' Cart.**—This is shown at *Fig. B 564*, and is made in two weights, the medium and the heavy. They are designed especially to supply the demand of market-truck farmers for a cart substantially built for carrying manure, vegetables, etc. They have flaring side-boards, and an adjustable dump-lock, which is very handy in unloading manure. The HEAVY CART has extra wide tires, so that even with the additional weight it can be used on plowed ground.

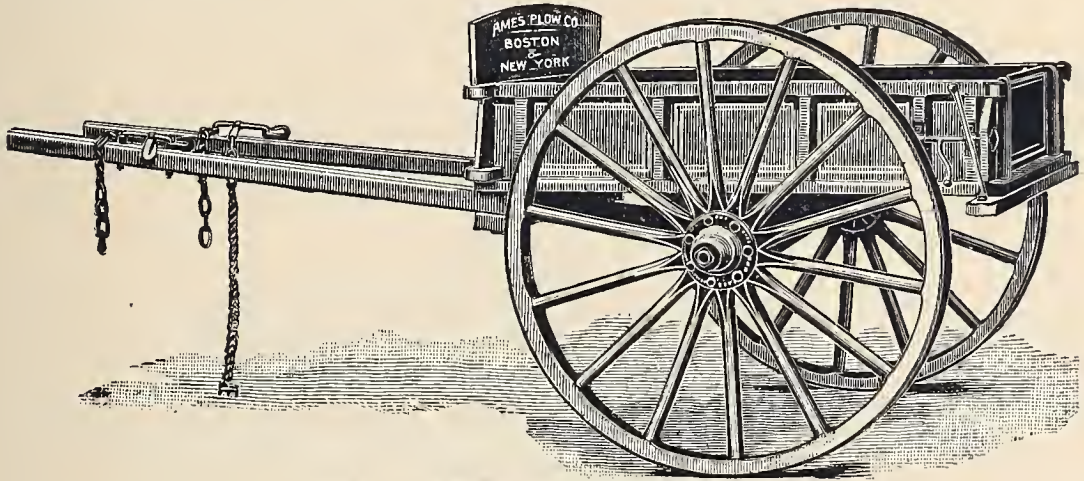


Fig. B 565.—Railroad Cart.

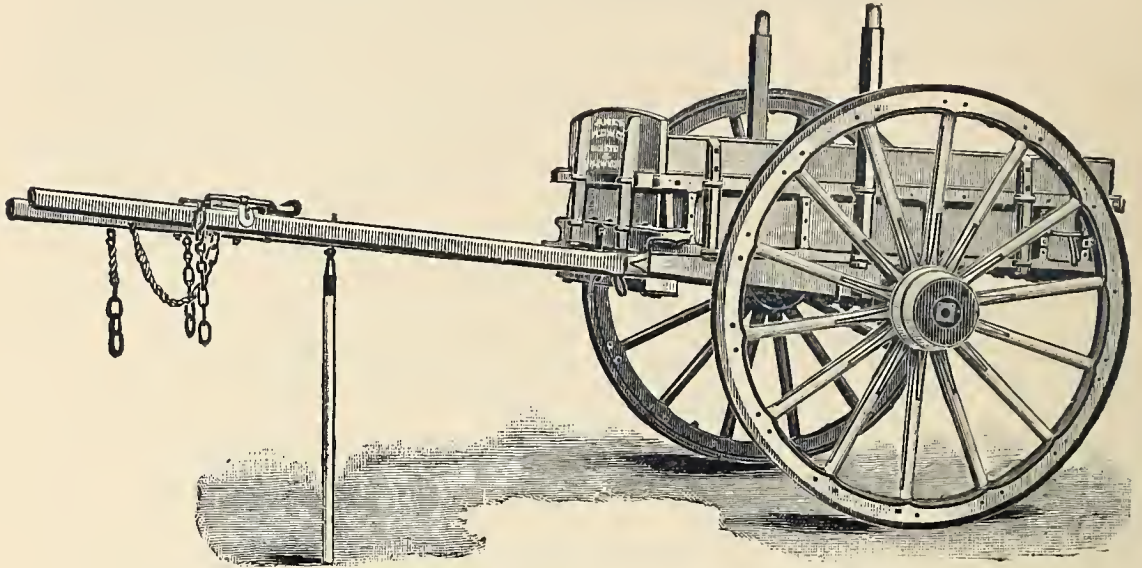
**The Railroad Cart.**—This cart, per *Fig. B 565*, has a large sale for use in building railroads, dams, reservoirs, and for road making and all large contract work. It is shown with iron hubs, but some contractors prefer wood hubs. It is well suited for general town work.

**The Extra Railroad Cart.**—This is of same capacity as the RAILROAD CART described above, and for same purposes. It is heavier, and rendered stronger by braces and other means, making it more desirable for long contracts. There is no better cart made for town work, and it will meet all the requirements of constant use. This cart with special shifting sides and ends makes an excellent coal cart for carrying one ton or more.

**The Contractors' Cart.**—This is substantially the same as the BOSTON CONTRACTORS' CART, illustrated at *Fig. B 566*, but a little lighter, and suited for use where McAdam and Asphalt take the place of stone pavement.

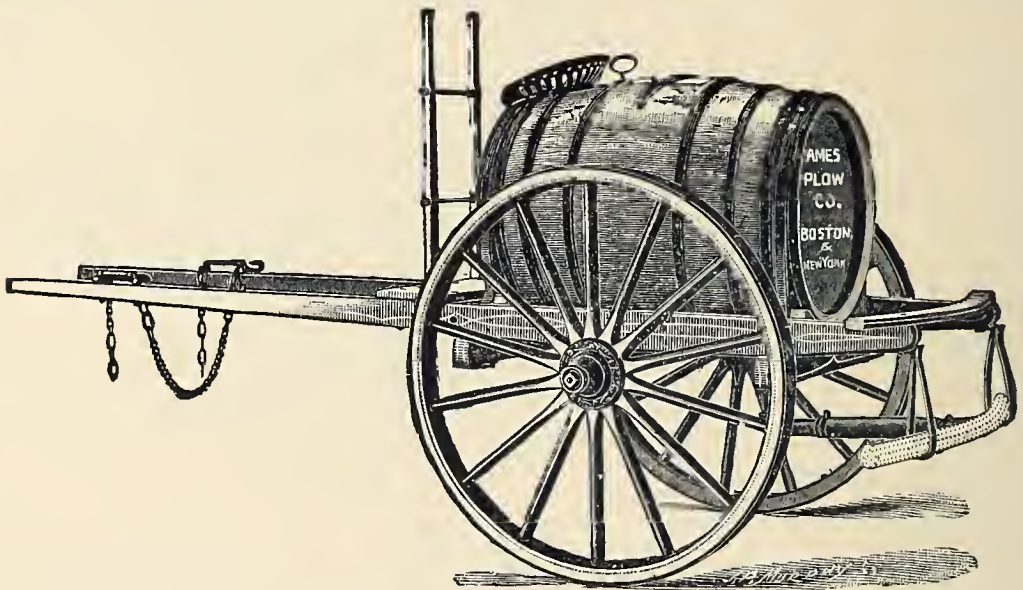


**The Boston Contractors' Cart.**—This cart, *Fig. B 566*, is specially constructed with a view to use on city works, and by city contractors, pavers, etc., and where very durable carts are needed for constant work on paved streets, and for



**Fig. B 566.—Boston Contractors' Cart.**

all kinds of work. Strongly reinforced by iron braces, bolts, and plating. The cart shown is the right size for ravel, but we can vary the dimensions for different kinds of work.



**Fig. B 569.—Sprinkling Cart.**

**The Sprinkling Cart.**—We illustrate this at *Fig. B 569*. It is indispensable about parks, cemeteries, country seats, and mill properties, for watering roads, walks, lawns, and yards. The wheels have wide tires, and the whole outfit is well made. It can also be used as a tank-cart for carrying water, spraying trees, and removing matter from cesspools, etc.



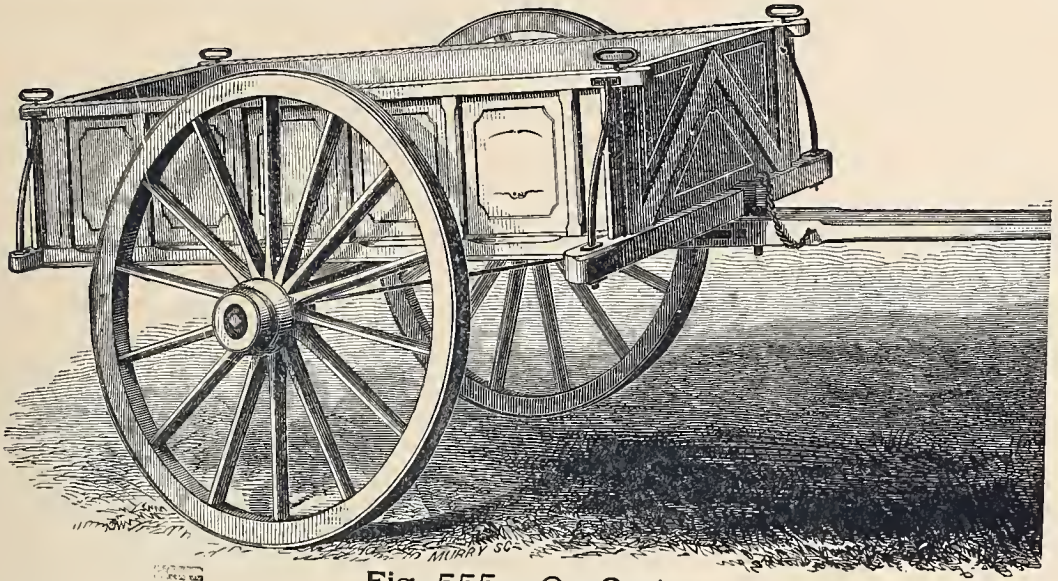


Fig. 555.—Ox-Cart.

**The Ox-Cart.**—We make several sizes, representing at *Fig. 555* our **HEAVY CART**, which is the style and size most used. It is very strong and capacious, and amply equal to any requirement of farm or road work.

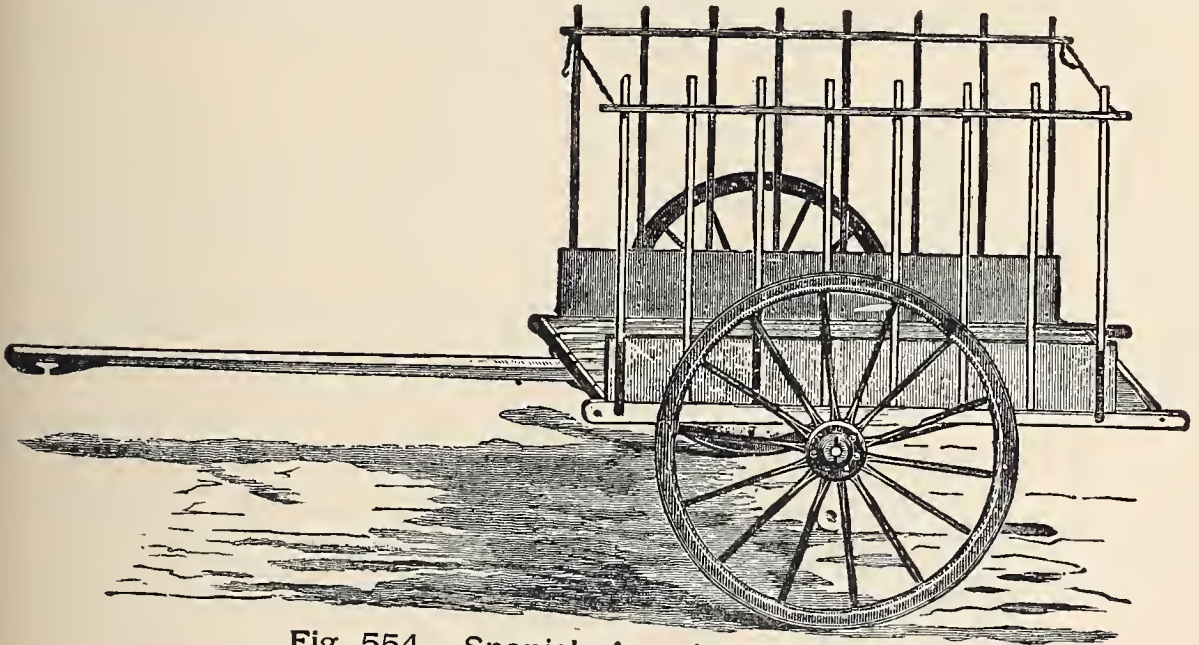


Fig. 554.—Spanish-American Ox-Cart.

**The Spanish-American Ox-Cart.**—This cart, shown at *Fig. 554*, is specially designed for sugar-cane, and was introduced by our Mr. F. G. Crosby, after eighteen years' experience on sugar-estates in the West Indies. This cart is for the purpose of removing the cane from the field to the mill for grinding. It is light, large, and roomy, yet very strong, to suit it for the rough roads and fields.

**Wet and Dry "Bagazo" Carts** are made to order in best manner at short notice.

**The Four-Wheel Farm-Cart.**—This cart is mounted on four wheels, and made to dump, and is about the same size body as our **TWO-WHEEL HEAVY FARM-CART** already described. We can furnish with shafts for one horse, or pole for two horses,



or both interchangeable, as desired. With this cart we always furnish SHIFTING FRONT AND SIDE-BOARDS. The HAY RIGGING can be furnished when desired.

**The Four-Wheel Town and Farm Cart.**—*Fig. B 567* shows this cart, which is larger and heavier than the FARM-CART, and specially adapted for town and farm work, with a team of two horses. The SHIFTING FRONT AND SIDE-BOARDS, shown in illustration, increase the capacity considerably. The HAY RIGGING can be used if desired. This is a dump-cart, and has an adjustable lock, so that the body can be tipped at any angle, and held there, in discharging load. This is especially desirable in spreading manure.

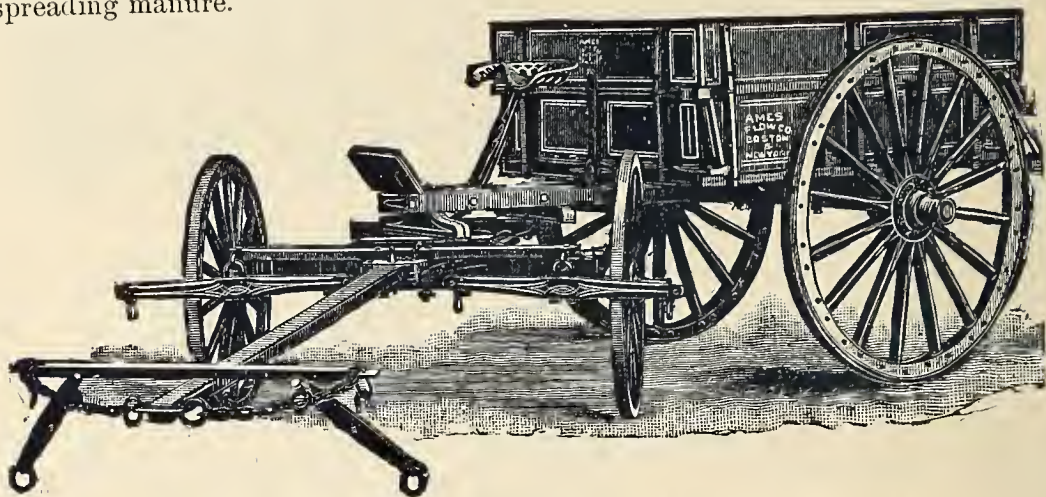


Fig. B 567.—Four-Wheel Town and Farm-Cart.

**The Four-Wheel Town-Cart.**—This is a still heavier cart than the TOWN AND FARM CART just described, and for town work there is no better cart to be secured, and it is equal to this work with a team of two or more horses. This cart has a box seat, as shown on the CONTRACTORS' CART below, and it can also be supplied with the low wheels to turn under reach if desired.

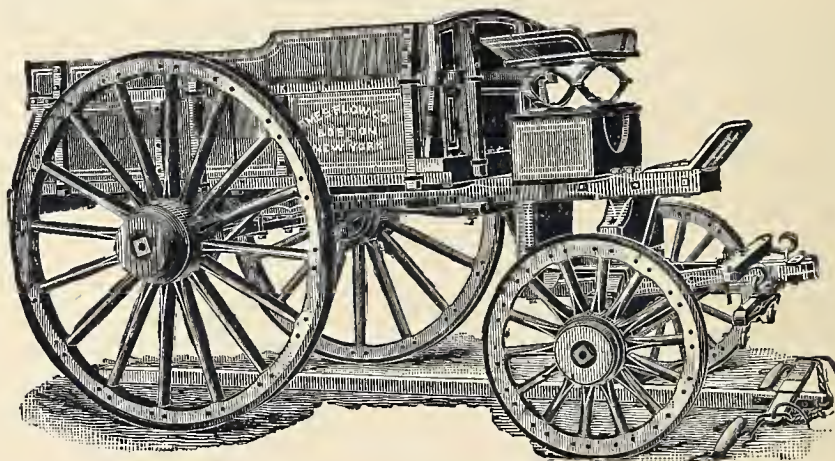


Fig. B 568.—Four-Wheel Boston Contractors' Cart.

**The Four-Wheel Boston Contractors' Cart.**—This is shown at *Fig. B 568*. It is built on the same principle, and for same purposes, as our TWO-WHEEL BOSTON CONTRACTORS' CART already described. It is a dump-cart, and the forward wheels



are arranged to cut under the reach, so that the pole can be turned to right angles with body, thus enabling driver to turn in a very small space, and when standing backed up in a street to take up less room. When desired we furnish larger front wheels, sometimes setting them wholly in front of body, as with FARM-CART, while others prefer them set close, which makes the reach shorter between front and rear axles. This makes an excellent coal cart, and can be rigged with special sides and ends for this purpose.

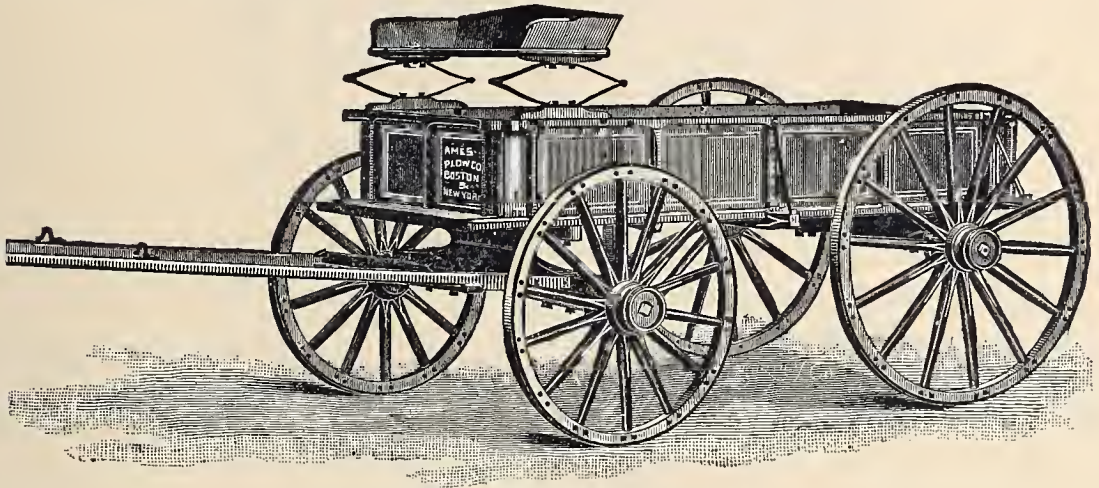


Fig. B 570.—Farm-Wagon.

*The Farm Wagon.*—The FARM-WAGON, shown at *Fig. B 570*, is for one horse. This is a first-class panel body wagon, and material, workmanship, and finish are of the best. We also make a two-horse wagon on same lines. These can be constructed to order, of any weight, with any size of axles, body, and width of track desired. The extra shifting side-boards, and the hay rigging, as described under carts, can be used on these wagons.

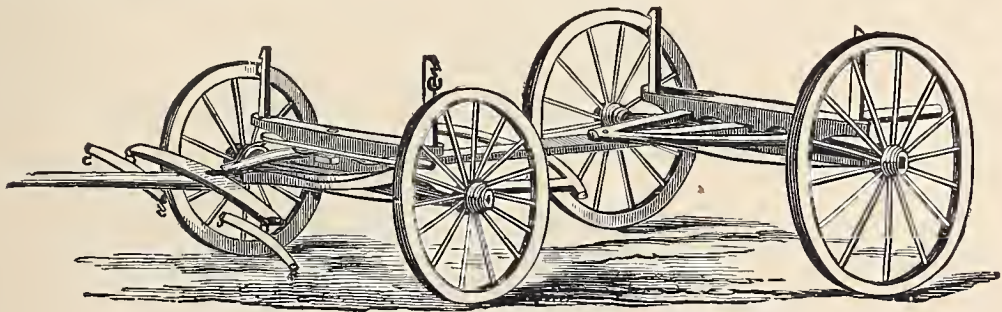


Fig. 559.—Running Gear.

*The Running Gear.*—We illustrate this at *Fig. 559*, and as shown it is used in transporting lumber; but a body can be fitted to it, so that it will also serve as a farm-wagon. This makes a very convenient rig. The size of axles can be varied, also the track, as in farm-wagon just described. The reach is so constructed as to extend and contract to suit it for different lengths of timber.



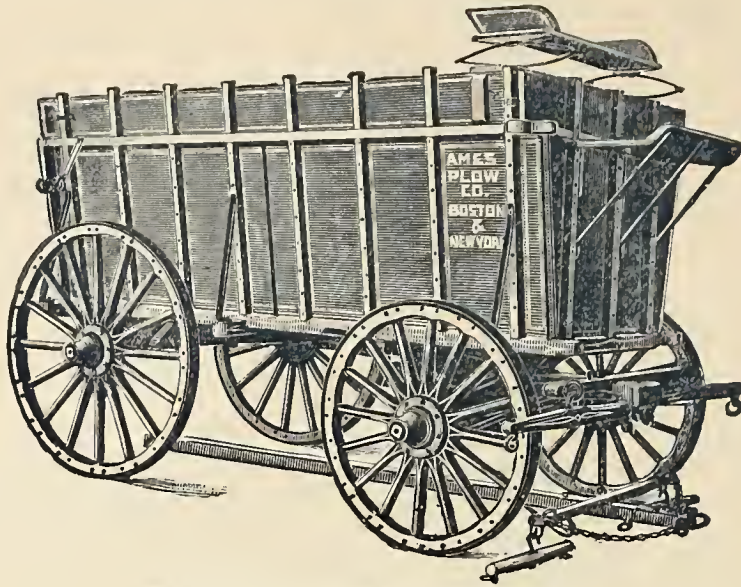


Fig. B 572.—Manure Wagon.

**The Manure Wagon.**—The wagon shown at *Fig. B 572* is our HEAVY MANURE WAGON, which is ample for the ordinary demands of those who use this style of wagon. The extra heavy wagon is built to order, but it is only needed for hauling manure out from cities where there are paved streets.

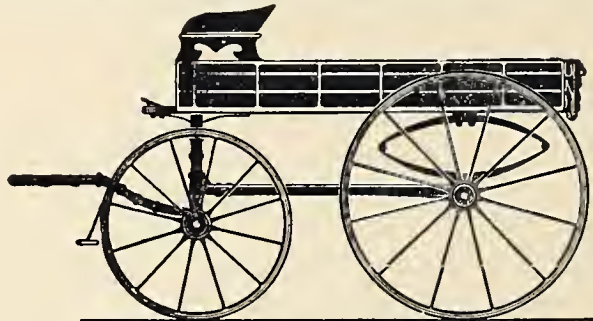


Fig. B 571.—Express Wagon.

**The Express Wagon.**—*Fig. B 571* shows one style of express wagon, but we have several, varying in size and in manner of make-up. This is a panel body wagon, made with a special view to city use. It also makes an excellent farm-wagon where a spring wagon is desired. The body can be built with plain sides if desired, and other variations to suit, as in other wagons already described.

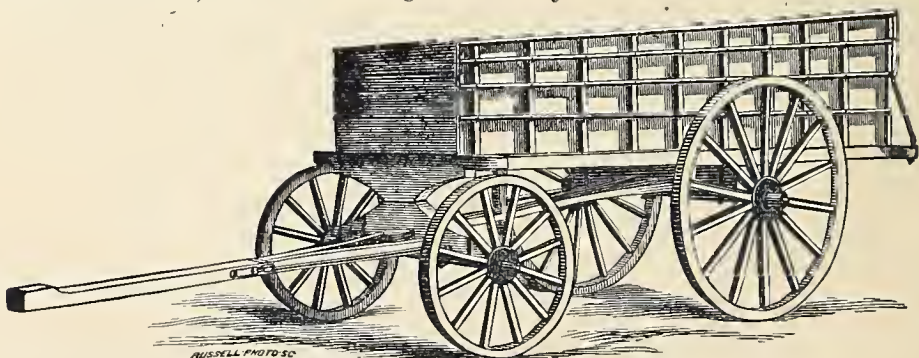
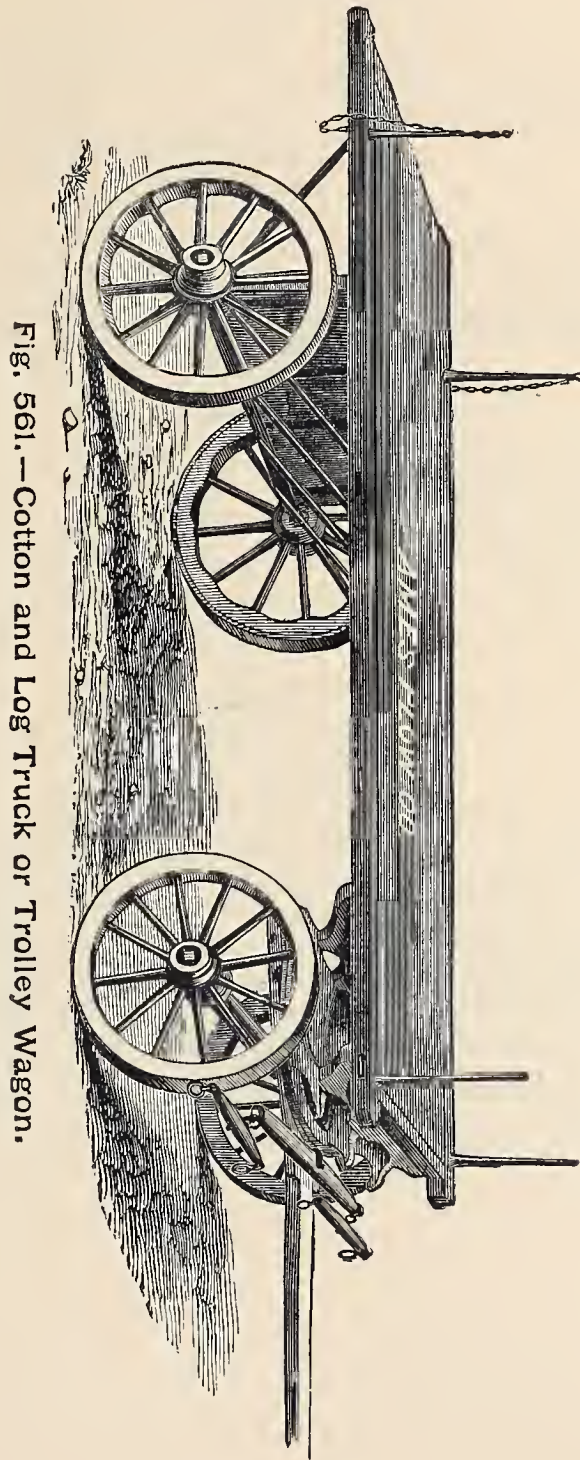


Fig. 560.—Tip Cane Wagon.

**The Tip Cane Wagon.**—This is represented by *Fig. 560*, and is for transport-

ing cane from the field to the mill. It is strongly built, and can be arranged for use either with oxen or mules.



*The Cotton and Log or Truck Trolley Wagon.*—We show this at *Fig. 561*, and it is well adapted for the purposes for which it is intended. It can be built for either light or heavy work.



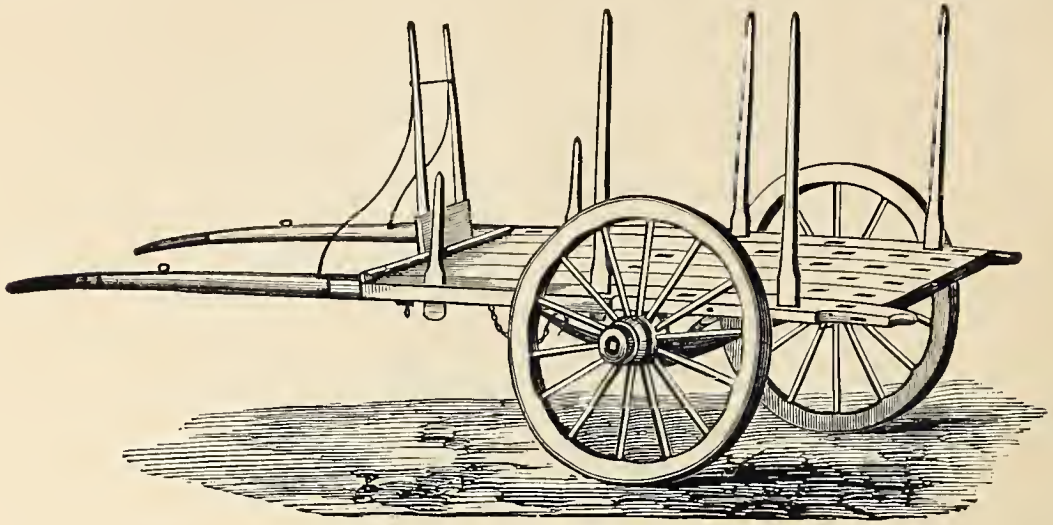


Fig. 556.—Dray or City Cart.

*The Dray or City Cart.*—This is illustrated at *Fig. 556*, and can be made in various sizes: for one, two, and three horses or mules abreast, or a string team. It is intended for street use, in transporting merchandise, and the mortised holes, into which the stakes fit, adapt it for carrying securely large or small loads.

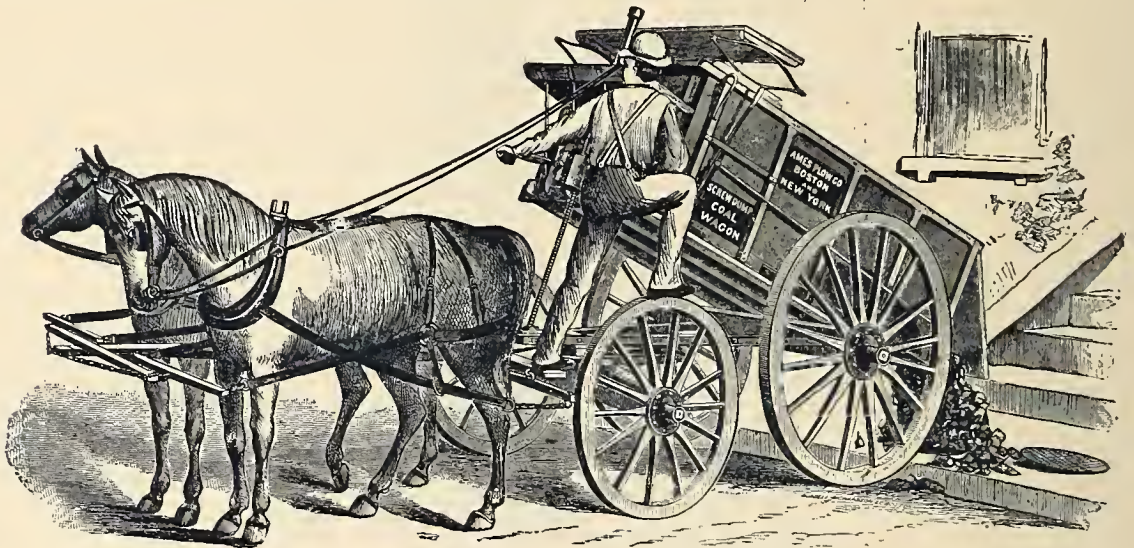


Fig. B 574.—Patent Screw-Dump Coal Wagon.

*The Patent Screw-Dump Coal Wagon.*—This is represented by *Fig. B 574*. They are made for one, two, or more horses. The one-horse wagon is ordinarily made to hold one to one and a half ton, and the two-horse from two to five tons. As demonstrated in the illustration the *screw* furnishes a very easy way of dumping a heavy load. The lever at side of wagon can be worked to throw open the end door at proper time. There is also a small slide in the end so that coal can be run out through it into baskets, or a chute. Many dealers have all their wagons rigged with this dumping arrangement. We furnish the dumping device alone when so desired.

## SLEDs.

WE are now building sleds of various styles, and can furnish almost any of the ordinary kinds to order.

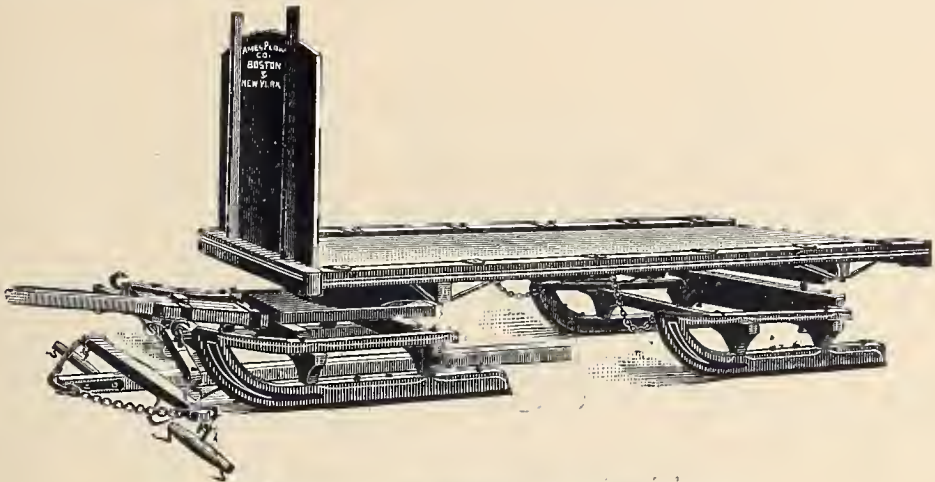


Fig. B 573.—Traverse Runner Sled.

*The Traverse Runner Sled*, illustrated at *Fig. B 573*, is of a pattern that is very acceptable for both city and country use. It is constructed with a platform, and the side and rear boards, which we furnish when desired, can be readily put on by means of the holes in platform and stakes on the boards.



## HARNESS.

WE have on hand at all times a large assortment of harness suitable for use with our various carts and wagons, and we can also furnish other kinds at short notice. We furnish either complete, or parts desired.



Fig. B 580.—Cart Harness.

*The Cart Harness.*—This is shown at *Fig. B 580*, and we carry in stock three or four different sizes after this pattern, the smallest suitable for mules, and the largest for the largest horses used in our cities.

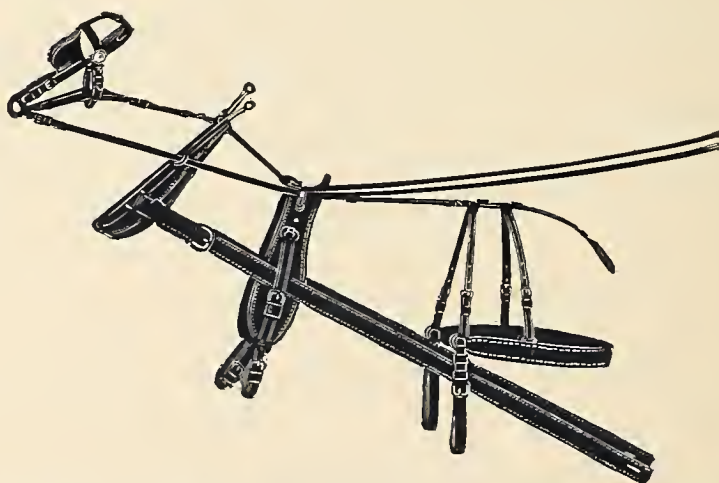


Fig. B 581.—One-Horse Wagon or Express Harness.

*The One-Horse Wagon or Express Harness.*—The harness shown at *Fig. B 581* is well suited for use with one horse on a farm or express wagon. For mules we can furnish a lighter harness, or for large horses a heavier one.

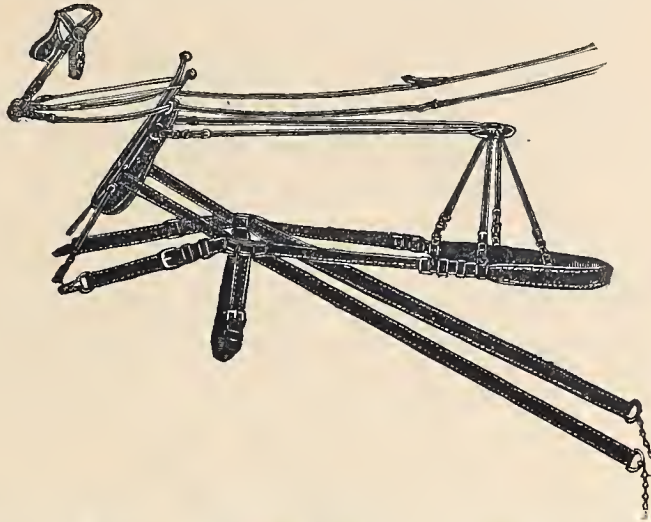


Fig. B 582.—Double Wagon or Cart Harness.

*The Double Wagon or Cart Harness.*—*Fig. B 582* shows these harness as usually furnished for our wagons and carts. We have several grades suitable for different work, and small and large horses. We can also furnish these harness of lighter grade for mules and small horses, and when desired jack pads are furnished for the back. These harness are adapted for use with spreader and short neck-yokes, as shown at *Fig. B 567* (TOWN AND FARM CART), but we can furnish for single neck-yoke, or for pole-chains when desired.



MISCELLANEOUS.

*The Little Giant Wheeljack*, represented by *Fig. 476*, has acquired a great popularity. The ease with which it can be operated, its compactness, lightness, and strength, have given it a reputation above all other implements for the same purpose.

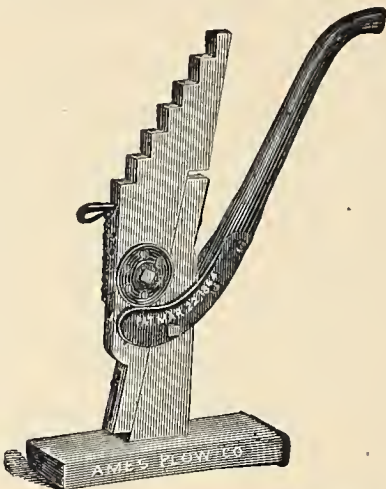


Fig. 476.—Little Giant Wheeljack.

We make five sizes: the four smallest sizes are made either with iron-plated notches, or plain notches; the largest size, for heavy vehicles, always iron-plated.

*The Ox-Yoke, Complete*, represented by *Fig. 481*, is made of various sizes and as noted below. We also manufacture yokes suitable for single cattle.

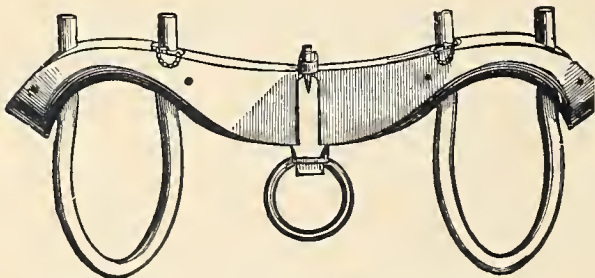


Fig. 481.—Ox-Yoke, Complete.

No. 1,	7	in. on neck by 19 in. betw'n bows.
" 2,	7½	" " " " 20 " " "
" 3,	8	" " " " 21 " " "
" 4,	8½	" " " " 22 " " "
" 5,	9	" " " " 23 " " "
" 6,	9½	" " " " 24 " " "
" 7,	10	" " " " 25 " " "

*The Two-Horse Whiffletrees*, shown at *Fig. 482*, are made in four styles or weights; viz.: light, for small horses or mules; heavy, and extra heavy, for ordinary work; and special, for the heaviest contract work.

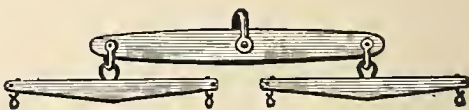


Fig. 482.  
Two-Horse Whiffletrees.

*The One-Horse Whiffletree* is made in the same styles as the Two-HORSE.

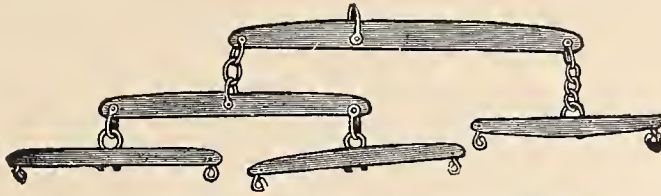


Fig. 496. — Three-Horse Whiffletrees.

*The Three-Horse Whiffletrees*, shown at *Fig. B 496*, are ordinarily made only in the heavy and extra heavy styles.



Fig. B 491. — Neck Yoke.

*The Neck-Yoke*, shown at *Fig. B 491*, is made in three styles. The one illustrated is the medium style, for use over end of pole. We also have a LONG NECK YOKE for use over end of pole. The SHORT NECK YOKE is for use where there are two required in connection with a spreader and chains, similar to illustration *Fig. B 567*.



Fig. B 492. — Whiffletree Chain.

*The Whiffletree Chain*, shown at *Fig. B 492*, is made in three sizes, viz.: six, eight, and ten link. We also make a heavy grade.

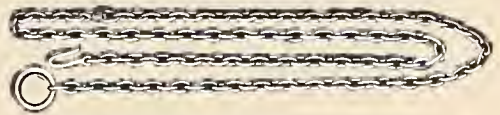
Fig. B 493.  
Ox Draft Chain.

Fig. B 494. — Rock Chain.

*The Ox Draft Chain*, shown at *Fig. B 493*, is a strong, heavy chain used in connection with the Ox Yoke, especially in hauling logs. It has a hook at both ends, and a swivel in centre.

*The Rock Chain*, shown at *Fig. B 494*, is a short link chain, made strong and heavy for the purpose of putting around rocks and logs in hauling. It has a ring, or a large hook, as desired, at one end, and a grab hook at the other, with a swivel in the centre.

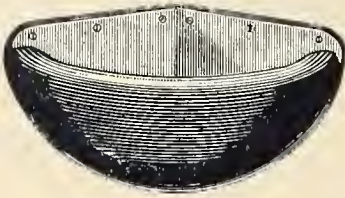
*The Horse Rackets, Leather Strap* are shown at *Fig. B 495*. These are for use on marsh or meadow land, and prevent the horse from sinking in, as would be the case if depending on his hoofs alone. We also make them with iron straps; also another kind to clamp onto the hoofs.

Fig. B 495.  
Horse Rackets,  
Leather Strap.

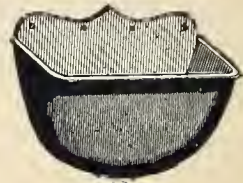


## STABLE FIXTURES.

There has been a steadily increasing demand the past few years for Iron Stable Fixtures. The line we now have to present is small but it embraces most of the essential articles and probably all that are required in a farm stable. We shall, however, enlarge our line from time to time, and, therefore, solicit correspondence regarding anything needed in this line.



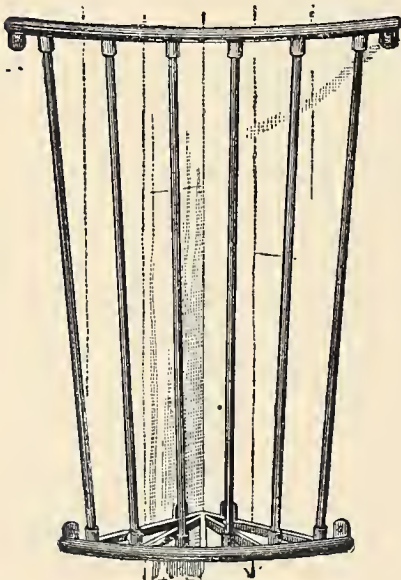
B 661.



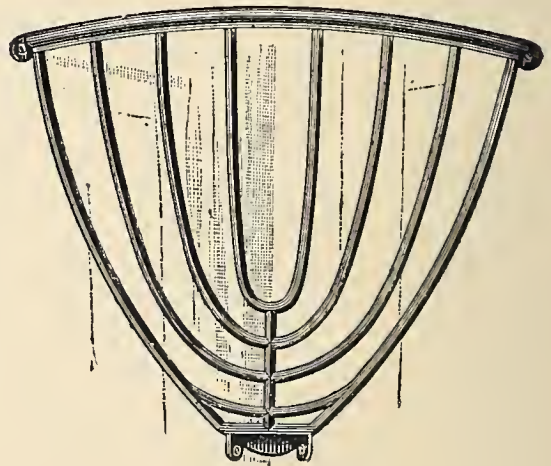
B 662.

**Mangers.**—*Fig. B 661* shows our Corner Manger which has a wide feed guard so there is no loss by spilling.

*Fig. B 662* shows our Side Manger.



B 663.

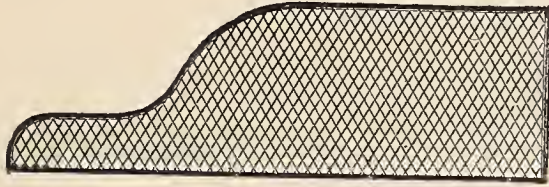


B 664.

**Hay Racks.**—*Fig. B 663* shows our Corner Hay Rack with Wrought Iron Bars and Cast Pieces top and bottom. This is the most desirable rack, especially for packing, as it can be taken entirely apart. One of the rods forms a bolt by which it is held together securely at the centre.

*Fig. B 664* shows our Cast Iron Corner Hay Rack.

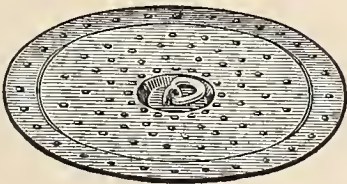
**Stall Guard.**—These are made of various patterns and any shape or size required. An ordinary size is 72 x 24 inches.



B 665.

*Fig. B 665* shows our Wrought Iron Wire Stall Guard with diamond mesh which is the most salable style we make.

**Stall Collars.**—*Fig. B 666* are made in several sizes but the most salable measures 37 inches long and 19 inches wide inside.

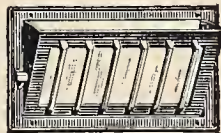


B 667.



B 666.

**Manure Scuttle.**—*Fig. B 667* illustrates Manure Scuttle with iron frame. We also furnish without frame to set in the wood but it is preferable to put in complete, being more durable.



B 668.

**Stall Ventilator.**—*Fig. B 668* illustrates our Stall Ventilator with adjustable Air Draft and glass which is barred on the inside so it is not readily broken. Size of frame is  $9\frac{1}{2}$  x 16 inches outside.



B 669.

**Stable Gutter.**—*Fig. B 669* shows Stable Gutter with outlet. We make these in  $4\frac{1}{2}$  foot lengths and they are  $6\frac{1}{2}$  inches wide and  $1\frac{1}{2}$  inches deep. We furnish with or without the outlet, as desired. As shown in illustration, one end of each piece is arranged to join the next and leave a smooth surface at the joint.



**Implement Hook.** — *Fig. B 671* shows the Implement Hook which screws to the wall and has two prongs which are well adapted to receive shovel, fork, broom or other stable implements.



B 671.



B 672.

**Stall Hook.** — *Fig. B 672* shows our Stall Hook which is used to clean out between the planks of the stall.



B 670.

**Pig and Hog Troughs.** — *Fig. B 670.* Round Troughs are very convenient as they can be suspended from the beam above and lowered only at feeding time, and the shape is such that the animals cannot very well get into them while they can feed with perfect freedom. We make two sizes, small for six pigs, large for six hogs.

## CONTRACTORS TOOLS.

**Picks.**—Recognizing a long felt want for good quality implements, we have made and specially branded with our name, picks of various styles which have during the past few years met the demand, and are appreciated by all who have used them.



B 680.



B 681.

*Fig. B 680* shows our RAILROAD PICK with one chisel end and one pointed end.

*Fig. B 681* shows the same pick with both ends pointed.

These illustrations both show the solid adze-eye. We can furnish any weight desired in these or other styles, also the open eye if desired, but the adze-eye is now looked upon with the most favor.



B 682.

*Fig. B 682* shows our BOSTON CONTRACTOR'S PICK, which is made especially for contract work in city streets where they must meet with extreme usage. We also have an *extra* brand of this style of pick which is pointed by hand with high grade tool steel, and some of our contractors will use nothing else.



B 683.

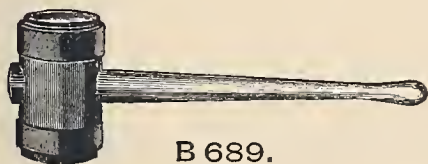


B 684.

**Mattocks.**—We have supplied the demand for a good quality mattock in the same way that we have picks.

*Fig. B 683* shows our LONG CUTTER MATTOCK.

*Fig. B 684* shows our PICK MATTOCK.



B 689.



B 690.

**Mauls.**—These are employed mostly in sewer construction.

*Fig. B 689.*—WOOD MAUL is for driving the plank.

*Fig. B 690.*—IRON MAUL is for bracing.





B 685.



B 686.



B 687.



B 688.

**Paving Rammers.**—We illustrate four kinds as made by us.

*Fig. B 685.*—STEEL RAMMER, weighs about 45 pounds. It is used mostly for granite block paving.

*Fig. B 686.*—WOOD RAMMER, weighs about 40 pounds. It is banded with iron, and is used for cobble pavings, sidewalks, edgestones, etc.

*Fig. B 687.*—IRON RAMMER, weighs about 27 pounds. It is used mostly by gas and water companies for replacing pavement after they have made repairs.

*Fig. B 688.*—IRON TRENCH RAMMER, with long handle, weighs about 20 pounds. It is used in trenches, and next to edgestones, also in laying street railroad tracks, for making a solid earth foundation.



B 691.



B 692.



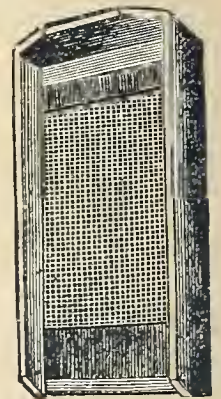
B 701.

**Hammers.**—*Fig. B 691.*—PAVING HAMMER, is made of best tool steel, and is used in laying all kinds of stone pavements; it is furnished with a wood handle same as shown in the BRICK HAMMER.

*Fig. B 692.*—BRICK HAMMER is for use on sidewalks, and on brick work of various kinds.

**Earth or Frost Wedge.**—*Fig. B 701,* is used in opening up pavements before the frost is out, also for frozen earth.

**Screens.**—*Fig. B 693,* for sand, gravel, coal, etc. Made with hard wood frames, heavy wire cloth bottoms, and iron leg. Sizes of mesh:  $\frac{1}{4} \times \frac{1}{4}$ ,  $\frac{1}{4} \times \frac{3}{8}$ ,  $\frac{1}{2} \times \frac{1}{2}$ ,  $\frac{5}{8} \times \frac{5}{8}$ ,  $\frac{3}{4} \times \frac{3}{4}$ ,  $1 \times 1$ ,  $1\frac{1}{4} \times 1\frac{1}{4}$ ,  $1\frac{1}{2} \times 1\frac{1}{2}$ ,  $1\frac{3}{4} \times 1\frac{3}{4}$ ,  $2 \times 2$ ,  $2\frac{1}{4} \times 2\frac{1}{4}$ ,  $2\frac{1}{2} \times 2\frac{1}{2}$ ,  $3 \times 3$ . For coal we sometimes furnish a base board with these screens, for which there is an extra charge.



B 693.



B 694.

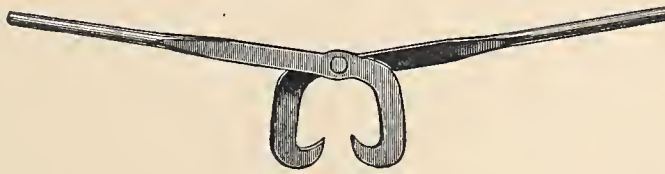
**Hods.**—Well made, and ironed, and fitted with good quality ash handles.

*Fig. B 694* represents MORTAR HOD.

*Fig. B 695* represents BRICK HOD.



B 695.



B 696.

**Rail Tongs.**—*Fig. B 696.*—BOSTON RAIL TONGS.—They are very popular here as they will take any size or kind of track.



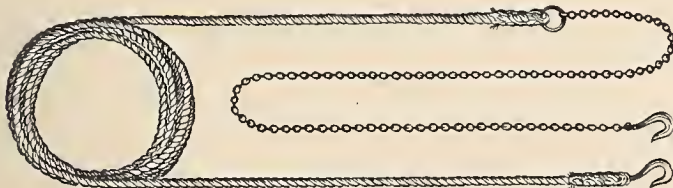
B 697.

**Track Gauge.**—*Fig. B 697,* is a light and convenient gauge. The iron projections are placed usually 4 feet 8½ inches apart, but of course can be made to suit any gauge desired.



B 698.

**Cant Hook.**—*Fig. B 698,* is the style that is used mostly by our contractors for handling square timber. It has a hook which is adjustable for different sizes of timber.



B 699.



B 700.

**Trench Chain and Rope.**—*Fig. B 699,* is used in connection with derrick for lowering sewer pipe, cement, etc., into the trench. As shown, one end is chain and the other rope.

**Hoisting Grapple.**—*Fig. B 700,* is used for hoisting baled hay into stable lofts as well as for other purposes.



## ICE TOOLS.

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In presenting this addition to our business, we respectfully call attention to the large assortment that we have already produced and which we shall extend from time to time. We shall be pleased to furnish at market rates any tools required that are not herein enumerated.

We shall use the same great care in the selection of material for, and in workmanship and finish of our Ice Tools as we have for over FIFTY YEARS in our Plows and other Agricultural Implements and Machines, which have achieved and maintain so high a reputation throughout the world.

We are now prepared to fill all orders with facilities for first-class work unexcelled, if equalled, by any other ice tool manufacturer.

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## MARKERS AND PLOWS.

We invite you to purchase at least a sample of our Plows with confidence, knowing that they will prove for themselves their sterling quality and superior workmanship and finish, as well as their practicability for work in the hands of even the most critical and exacting ice cutters. We use for the teeth only the BEST CAST STEEL, made especially for us for this purpose, and for the other parts steel is used wherever it is best, even to the braces.

All our plows and markers are fitted with IMPROVED CLEARING TOOTH and furnished in a SUBSTANTIAL CASE for protection as well as for ease in moving from place to place on the ice when not cutting. FILING GAUGES with all Markers and Plows.

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## BARS, TONGS, HOOKS AND OTHER SMALL TOOLS.

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As in our Plows and Markers we use only the best materials in the construction of all our small tools. We shall at all times conform to the latest and most approved shapes, and pay special attention to the precise temper of each tool. We invite special attention to our hooks and tongs, which we consider superior in working qualities to any on the market.

## REPAIRS.

Tools sent for repairs should be plainly marked to our address, by whom sent, and with instructions by mail as to the nature of repairs required.

Always send the Swing Guide with Plow or Marker.

Plows that have been improperly filed can be made nearly as good as new at a moderate cost.

Markers and Plows can have new teeth set in them at a low price.

Bars and Chisels can be re-steeled when worn, making them as good as new.

Hooks can also be repaired at a considerable less cost than new goods.

## SHARPENING ICE PLOWS AND MARKERS.



Fig. AP O. — Diagram of Ice Plow in Process of Sharpening.

We illustrate, at *Fig. AP O*, the process of sharpening an Ice Plow or Marker. Use the filing gauge [C] and a 5 to 6-ft. straight edge. The teeth should never be filed on the front in the intermediate spaces. Always turn the feather edges down. Don't sharpen the clearing tooth, but file it so blunt point [G] will clear the straight edge by 3-16 inch.

**FIRST.** File point [B] of each tooth sharp and square on the bottom.

**SECOND.** Place straight edge on the points of teeth and continue filing until all points touch straight edge.

**THIRD.** File the heels so the point of following tooth will drop 1-4 inch full, using filing gauge to line the point and heel and determine height of point of next tooth.

**FOURTH.** File a good clearance back of the point of each tooth at [D] so extreme end of point only will touch gauge.

**FIFTH.** File heel of rear tooth [F] so heel will be 3-8 inch shorter than the point [A] of same tooth.

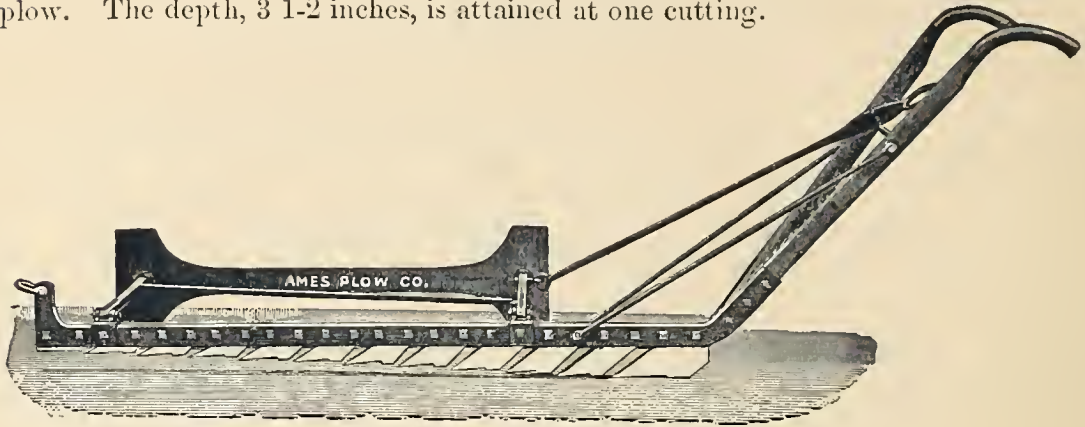
To increase the feed of Plows and Markers file a little off each heel; to decrease the feed file a little off each point.

**NOTE.** — We suggest to those using several plows at the same time that, as the width of our plows is graded so that the deeper ones may follow the shallow more easily, therefore, due regard should be given to have the plows follow in regular order of depths.



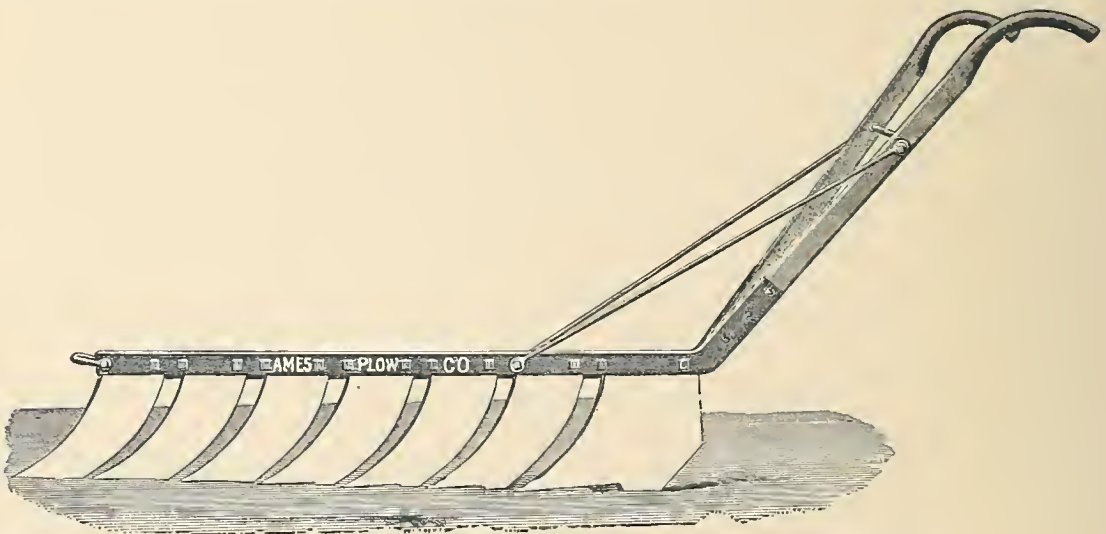
**Fig. AP 1.—Ice Marker,** with Swing Guide. Cast Steel, 3 1-2 inch, 11 cutting teeth . . . . .

For marking out the “field” of ice into squares preparatory to grooving with the plow. The depth, 3 1-2 inches, is attained at one cutting.



First having made a straight line or scratch across the “field” with the **LINE MARKER** or **HAND PLOW**, run the marker in this scratch to make first groove. Returning, throw the **Swing Guide** into this groove, thus teeth will cut the second groove at proper distance and parallel to the first. The regular distance between grooves is 22 inches, variable to 21½ inches for convenience in planing, but guides for other widths are furnished if ordered. Use a marker for this purpose if it can be afforded, for it cuts a wider and deeper groove, and, being shallow, can be run straighter than even a shallow plow. Many, however, for economy in tools, use a shallow plow with swing guide for marking the “field.”

We can also furnish, when desired, the **DOUBLE MARKER** for marking out two grooves at one passing. For this style the **Swing Guide** is hung midway between the two rows of teeth so it can be swung both ways.



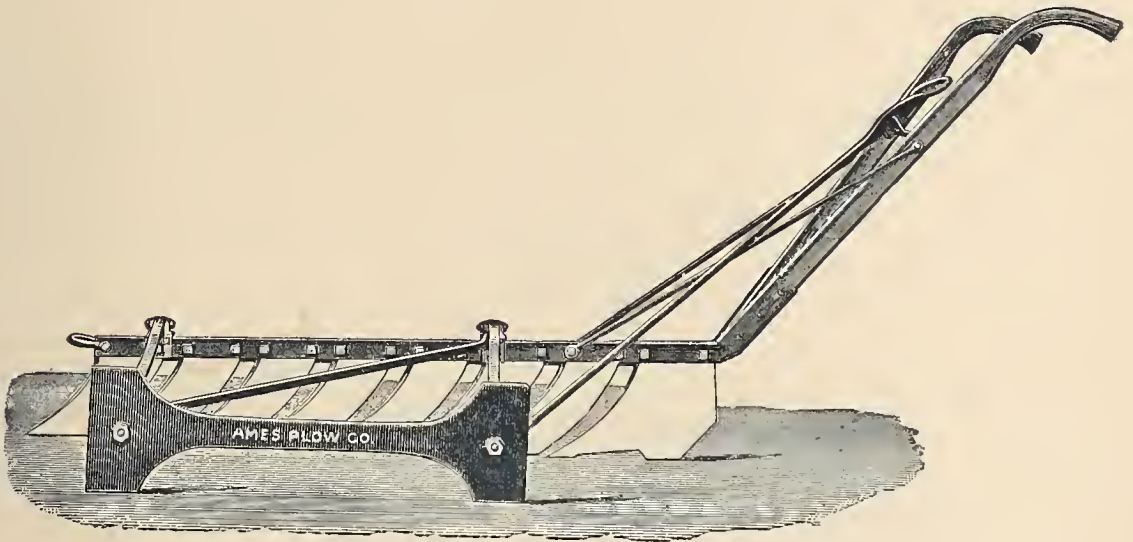
**Fig. AP 2.—Ice Plow,** Cast Steel, and Improved Clearing Tooth.

For grooving the ice to the depth desired, customarily about two-thirds the thickness of ice, following in the groove of the marker, and leaving the “field” of ice

ready for the Saw. A Plow cuts about 1-4 inch to the tooth, or two inches deep, each passage of a 7-tooth plow. As explained in Note, on page 3, a shallow plow should never follow a deeper one, but always in the regular order of depths. It is advisable to run two plows, one shallow and one deep, if necessary to groove ten to twelve inches deep.

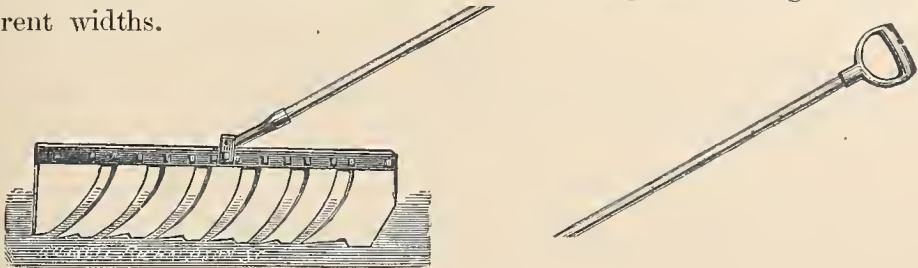
The following are the regular sizes made but other variations can be had to order :

6 inch, with 7 cutting teeth, and improved clearing tooth									
6	"	"	9	"	"	"	"	"	"
7	"	"	7	"	"	"	"	"	"
8	"	"	7	"	"	"	"	"	"
8	"	"	8	"	"	"	"	"	"
9	"	"	7	"	"	"	"	"	"
10	"	"	6	"	"	"	"	"	"
12	"	"	5	"	"	"	"	"	"
14	"	"	5	"	"	"	"	"	"



**Fig. AP 3.—Ice Plow,** with Swing Guide, Cast Steel and Improved Clearing Tooth.

The SWING GUIDE is used when parties wish to combine the Plow and Marker, but not advised on plows deeper than 8 or 9 inches. The usual width is 22 inches, but we sometimes furnish for narrower cutting, and for wider also, up to 44 inches. All of the Guides are variable by  $\frac{1}{2}$  inch. Adjustable Guides can be made but where more than one width of cake is to be cut, we advise separate Swing Guides to suit the different widths.



**Fig. AP 6.—Hand Ice Plow,** Cast Steel, 6 inch . . . . .

For grooving between eakes preparatory to splitting apart with bars when discharging ice that has been housed in blocks of two or more eakes; also for making first line on "field" for the Marker to follow and for finishing ends of grooves. We



can furnish 7-inch Hand Plows when desired. A painted case is strapped on each Plow same as with the Horse Plows and Markers . . . . .



**Fig. AP 8.—Line Marker** . . . . .

For making a straight line or scratch by means of a straight edge in which to run the Marker on first groove, a substitute for Hand Plow for this purpose.



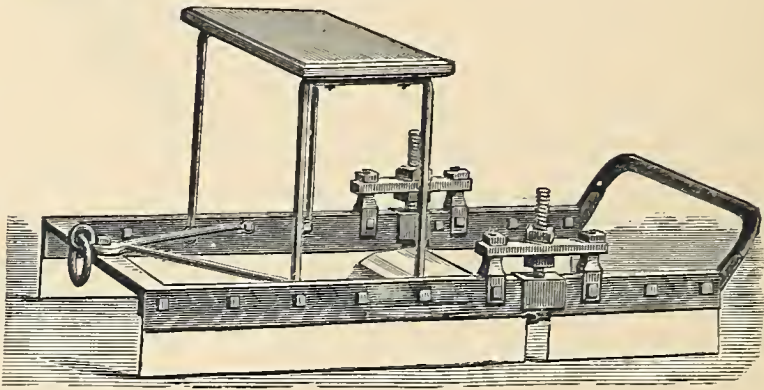
**Fig. AP 9.—Ice Auger, 1½ inch, rapid cutter** . . . . .

For testing thickness of ice, also for inserting pins for lines, etc. Made with swivel head and long shank, so operator maintains a standing position.



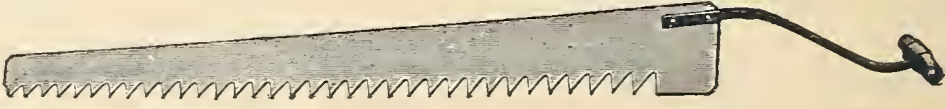
**Fig. AP 10.—Measuring Rod, Steel, Polished** . . . . .

Marked off by inches as high as 24 with hook to catch on bottom of ice. Used with Auger in testing thickness.



**Fig. AP 12.—Snow Ice Plane** . . . . .

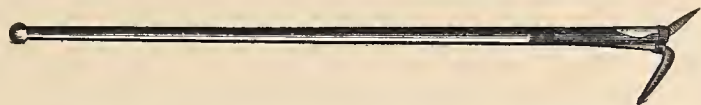
For removing snow ice and dirty ice. Made to run in grooves of marker or marking plow. Knife can be set to cut off any thickness up to 3 inches at one operation. The weight of driver keeps it steady in the grooves. If other widths than 22 inches are required we can supply to order. It is customary to buy an extra knife for which there is a charge.



**Fig. AP 15.—Ice Saw.** The following are the ordinary lengths:

- 4 feet long . . . . .
- 4½ " " . . . . .
- 5 " " . . . . .

For opening the channel and sawing the "floats" out of the "field"; also for those cutting small quantities without a plow. We recommend the 5-foot saw where the depth of water will permit its use. We furnish saws in painted cases when so desired.



**Fig. AP 16.—Ice Hook**, best Norway iron, steel pointed with an extra quantity of best tool steel. The following are ordinary lengths :

Ice Hook, with 3 and 3½ feet turned ash handle	.	.	.	.
“ “ “ 4 and 4½ “ “ “ “	.	.	.	.
“ “ “ 5 feet “ “ “	.	.	.	.
“ “ “ 6 “ “ “	.	.	.	.
“ “ “ 8 “ “ “	.	.	.	.
“ “ “ 10 “ “ “	.	.	.	.
Floating “ “ 12 “ handles	.	.	.	.
“ “ “ 14 “ “	.	.	.	.
“ “ “ 16 “ “	.	.	.	.
“ “ “ 18 “ “	.	.	.	.

We call special attention to the improved points on our hooks and the knob ends of our handles, superior to any in the market. The common lengths are 4½ and 5 feet. The 6 and 8 feet lengths are for canal use. The 3 and 3½ feet are for use at close quarters, such as in holds of vessels. We can furnish Pullers, Shovers and Rivets for repairs if desired. FLOATING HOOKS with 10 to 18 feet handles are for guiding the “floats” from “field” to elevator.



Fig. 17.

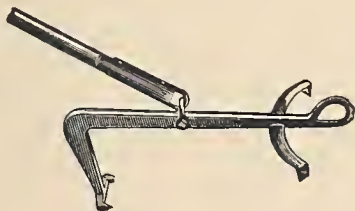
**Fig. AP 17.—Car Ice Hook**, with 4 ft. turned ash handles, shover iron carried 18 inches up handle to strengthen and guard wood. Other lengths to order.



Fig. 18.

**Fig. AP 18.—Cant Ice Hook**, combined with 4 or 4½ ft. ice hook for “edging up” ice for packing in houses or barges . . . . .

We can supply Cant Hooks unattached if desired.



AP 25.

**Fig. AP 25.—Ice Grapple**, with handle . . . . .

For drawing the cakes up an incline by horse or steam power in absence of elevator, used with or without handle ; also for use as a canal grapple with 12 ft. of rope, for drawing floats along the canal, especially where the distance is long.



AP 26.

**Fig. AP 26.—Jack Grapple** . . . . .

For same purpose as Grapple but preferred by many. It has a stationary handle which can be set either right or left-handed. The points are steeled for durability.





Fig. AP 28.—Ice Carrying Grapple, 22-inch span, for carrying blocks of ice, etc. . . . .



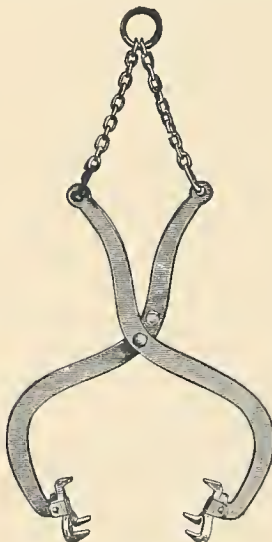
Small, AP 30. Medium, AP 30. Large, AP 30. Hollow Handle, AP 31

Fig. AP 30.—Boston Pattern Swell Handle Steel Tongs . . .

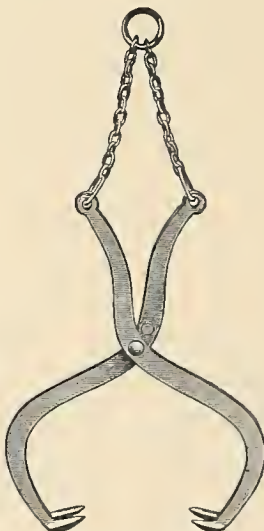
Fig. AP 31.— “ „ Hollow “ “ “ . . .

The Boston Pattern Tongs are more generally used than any other style. Our Tongs are made of steel, and we call special attention to our improved points, which we consider superior to any in the market in their working qualities. The hollow-handled tongs are preferred by icemen for delivering. They are made of best quality tool steel throughout and in same sizes as the Swell handle if desired, but the demand is mostly for the medium size. The sizes are:

Small, 14½-inch span; medium, 16½-inch span; large or loading, 24-inch span; extra large or loading, 26-inch span.



AP 32.



AP 33.



AP 34.

Fig. AP 32.—Hoisting Tongs, with adjustable hands . . .

Fig. AP 33.— “ “ with claw points . . .

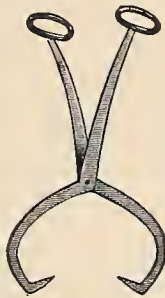
Fig. AP 34.— “ “ with single points, light . . .

Hoisting Tongs are used for hoisting and lowering ice, hoisting direct from the water to platform, loading vessels, filling houses, etc. They are made of stiff steel

and pointed with cast steel. The AP 32 and 33 Tongs can be furnished in extra heavy weight for double cakes.



AP 35.



AP 36.



AP 37.

**Fig. AP 35.—Lowering Tongs** are for use where there is little room, as filling ice boxes and large refrigerators, etc. . . . .

**Fig. AP 36.—Drag or Stowing Tongs**, long handle. For stowing ice in houses . . . . .

**Fig. AP 37.—Edging-up Tongs**, for edging up ice when stowing in houses.



**Fig. AP 39.—Breaking Bar** . . . . .

The steel wedge-shaped end is inserted in plow grooves, thus detaching the “floats” from main body, also breaking up the “floats” into strips in same way.

The ears give a firm bearing for the foot. The chisel end is for convenience if a sharp blade should be required. It can be used for calking and the chisel end for splitting.



**Fig. AP 41.—House Bar** . . . . .

Used for separating the cakes when stored in houses in blocks, and it will enter the grooves of a hand plow. It is lighter than a Breaking Bar and without the chisel end.



**Fig. AP 42.—Fork Bar**, 4-prong . . . . .



**Fig. AP 40.—Fork Bar**, 3-prong, with Ring Handle . . . . .

These are preferred by many to the Breaking Bar and necessary where water has flowed into grooves and frozen. The fork is made of solid steel and drawn to a sharp edge. The 4-prong is also made with Ring Handle and the 3-prong also with Plain Handle.





**Fig. AP 43.—Splitting Fork** . . . . .



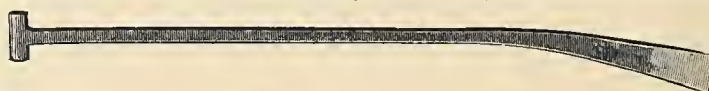
**Fig. AP 56.—Splitting Bar** . . . . .

These are also for use in the grooves, and particularly valuable in heavy ice, as they have great wedge power. They are solid steel, and are drawn to a sharp edge. Furnished with plain or ring handle as desired.



**Fig. AP 44.—Calking Bar** . . . . .

For calking the ends of grooves with the chips made in grooving, and thus preventing water from running in. It is long and thin, and made entirely of steel.



**Fig. AP 45.—Starting or Striking Under Chisel** . . . . .

For starting up blocks of ice in house after they have been cut around with a bar chisel or separating chisel. The curve saves much stooping. Made of steel throughout, and very serviceable. It is also used for "wetting down."



**Fig. AP 46.—Bar or Packing Chisel** . . . . .

Used for cutting around the cakes in getting ice out of house, and for trimming off any unevenness in blocks when stowing, breaking out channel, cutting holes, etc. It has a wide, well-steeled blade, bevelled one side, and is a very rapid cutter. We make it with a stiff steel handle. Sometimes used with a ring handle



**Fig. AP 47.—Socket Packing Chisel** . . . . .

Same as the Bar Chisel, except with wood handle. It is used for same purpose, and is preferred for packing and loading vessels because it is lighter and more convenient.



**Fig. AP 48.—Floor Chisel** . . . . .

Same as Socket Chisel, but with the chisel set at an angle, as illustrated; for use in vessels and houses to level the ice in packing, and thus allow other cakes to slide without a run.



**Fig. AP 49.—Separating Chisel** . . . . .

For separating the cakes when packed on edge. Made with a long, thin steel blade, and a stiff steel handle. Can be supplied with ring handle when desired.



**Fig. AP 50.—Splitting Chisel** . . . . .

Made with a narrow blade, it is a light and handy implement, and is used for splitting blocks or strips into cakes. It is also handy for many other purposes.



**Fig. AP 51.—Ring Handle Splitting Chisel** . . . . .

For same purpose as Splitting Chisel. The ring gives the operator a firmer hold, thus preventing loss through the ice. It is much used for cutting holes and various other purposes.



**Fig. AP 52.—Canal Chisel** . . . . .

Same as the Splitting Chisel, but it has a longer handle, so operator can stand on a raised platform and split the cakes from the strips as they float in the canal. We can furnish with a wooden handle, which makes it lighter, and this is preferred for some uses.



**Fig. AP 53.—Hook Chisel** . . . . .

For use in the canal as a chisel and ice hook combined. It has a long wooden handle. The hook is convenient when the blocks must be drawn into position for splitting.



**Fig. AP 60.—Elevator Fork** . . . . .

For feeding ice to the elevator. It is practically an ice hook with one “puller” and two “shovers,” and by the latter the operator has more control over the ice than with a hook. The usual length of handle is 6 feet, other lengths to order.

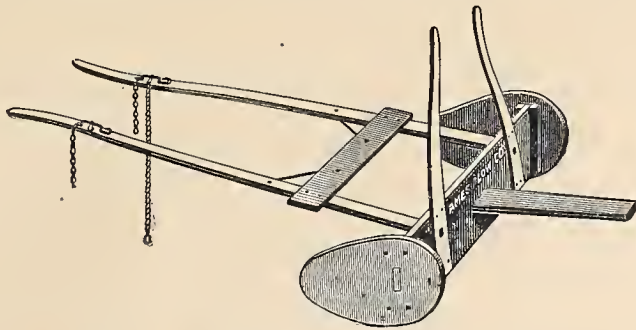


**Fig. AP 62.—Scoop Net** . . . . .

Strongly made of chain for cleaning the channel of ice chips, etc., letting the water run through.

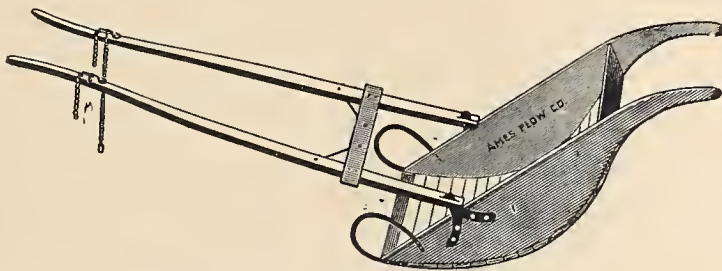






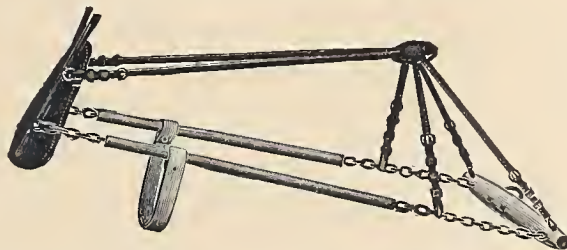
**Fig. AP 76.—Clearing Scraper**, with shafts . . . . .

The Clearing Scraper is for collecting light snow into ridges or windrows for removal by Scoops or Sleds. Also for cleaning up after the scoops or sleds. Made 6 feet wide, other widths to order.

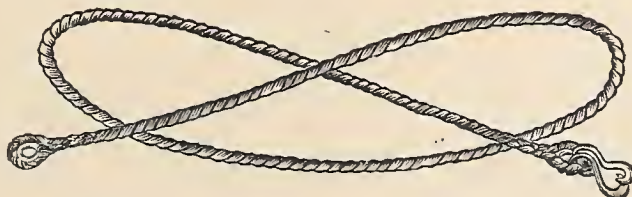


**Fig. AP 77.—Scoop Scraper**, with shafts . . . . .

The Scoop Scraper is used chiefly when the snow is deep, but is also used in carrying off windrows. Made 3 feet wide, other sizes to order.



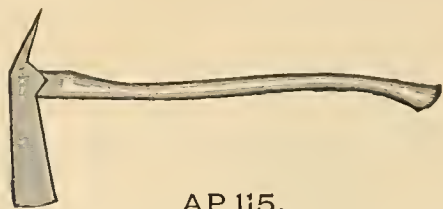
**Fig. AP 95.—Grooving or Hoisting Harness, Complete** (less Collar); viz., Hames, leathered, Double Back and Hip Straps, Belly Girth, Traces, Pipes, and Whiffletree . . . . .



**Fig. AP 96.—Plow Rope**, 9 feet long, manilla, with Thimbles and Sister Hook . . . . .

The above Grooving and Hoisting Harness and Plow Rope constitute the most complete and best rig for use with ice plows and markers. The Harness can also be used by those who hoist by horse power.





AP 115.



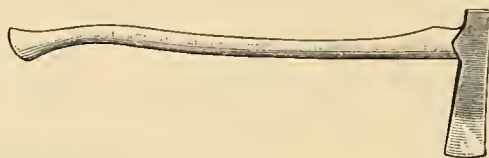
AP 118.

**Fig. AP 115.—Boston Pattern Ice Axe**, with 30 inch handle, and  $1\frac{3}{4}$  inch bit . . . . .

This is the most popular style of Axe made for wagon use. It is symmetrically constructed, and finished in the best manner.

**Fig. AP 118.—Chest Hatchet**, with 12 inch handle . . . . .

A very convenient article for household use.



**Fig. AP 121.—Tapping Axe** . . . . .

This Axe is preferred by some for use in "wetting down" a field after a snowfall.

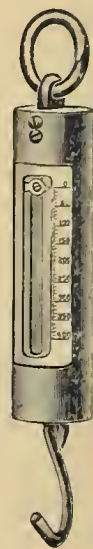


**Fig. AP 125.—Ice Hand Saw**, 30 inch blade . . . . .

The Hand Saw is used by some retailers instead of the Axe.

**AP 132.—Mogul Ice Scales** . . . . .

For use in the wagon in weighing out at retail. We recommend the Mogul as the very best for the purpose. It is simple in construction, and cannot be overstrained. The casing is of steel, and the mechanism is a pair of superior quality spiral springs, with a sliding link which cannot be drawn beyond the maximum index. These scales are marked to weigh by 5 pounds, and with maximums of 200, 300, and 400 pounds, as desired.



**Fig. AP 135.—Ice Breaker or Fork** . . . . .

For use in breaking up ice into small pieces for fish markets, saloons, etc., and carried on almost every wagon. Also used by fish packers, ice-cream makers and others. Made with D handle as above, or with long handle.



**Fig. AP 136.—Ice Shaver** . . . . .

Used for same purposes as the Breaker, but it shaves finer. Also made with either D or long handle.















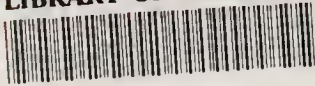








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